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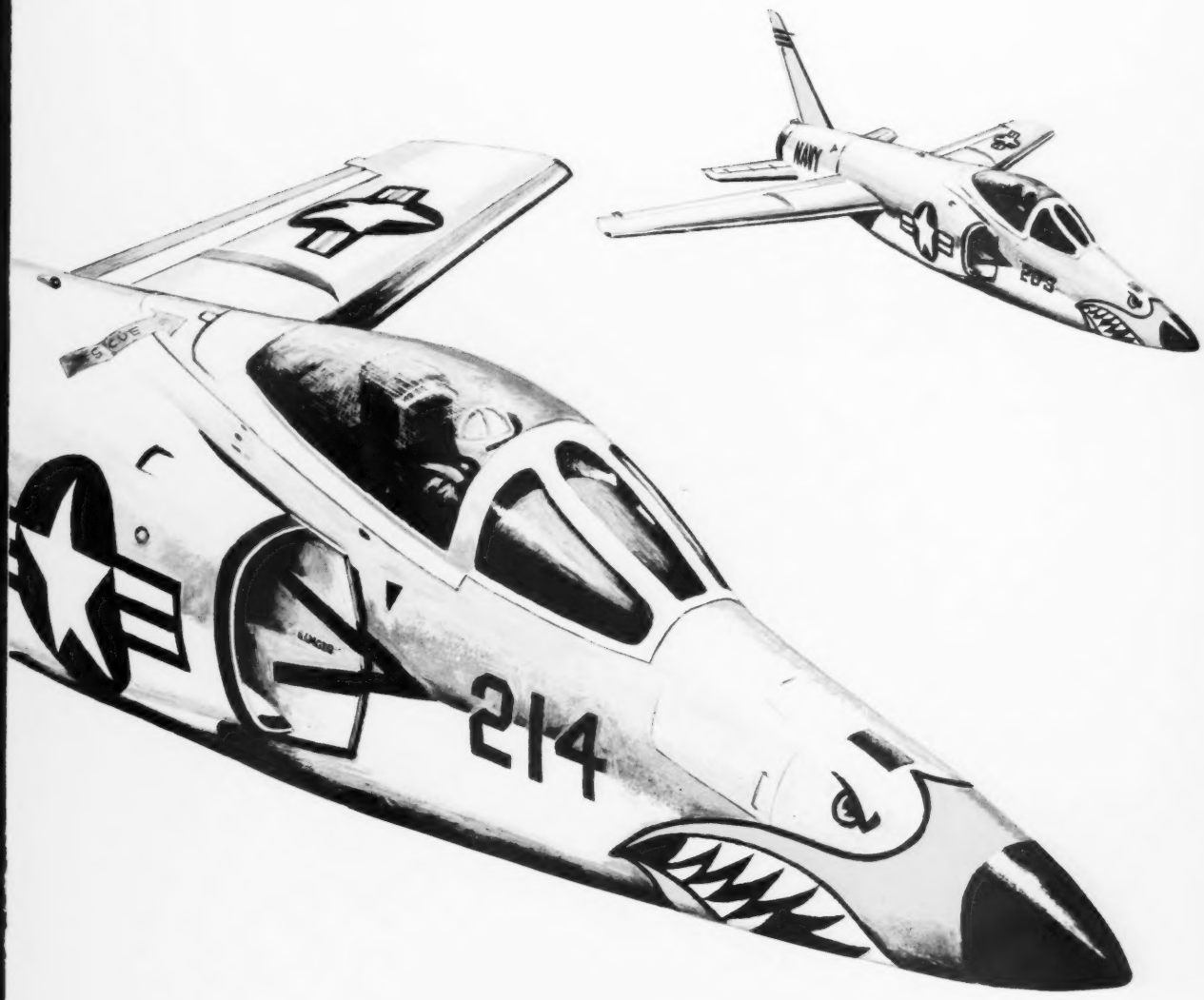
approach

APRIL 1975 THE NAVAL AVIATION SAFETY REVIEW



B. Rader

Performance and Professionalism

Aviation Safety in the Naval Reserve

By LCDR William H. Siren, USNR

AN apparent paradox exists in naval aviation; historically, the Naval Air Reserve has enjoyed a very low accident rate while operating within parameters that would seem to inhibit aviation safety.

Doesn't the "Weekend Warrior" fly less than his active duty counterpart, and isn't he therefore less proficient? And doesn't he fly older equipment – aircraft that are more susceptible to fatigue or corrosion failures and aircraft without the latest (and safest) engineering developments incorporated? Shouldn't such factors produce a high accident rate?

This achievement has been gained in spite of the factors listed in Fig. 2 that would seem to impede the attainment of a low accident rate. Reserve pilots, by flying only 2 or 3 days a month, should logically be less proficient and, therefore, less safe than active duty pilots. Also, since Reserve aircraft fly less, there should be more marginally up (and perhaps potentially dangerous) aircraft in the Reserve command since it is generally accepted that an airplane should fly often if it is to remain up. Finally, since the Reserve squadron meets only once a month, the commanding officer and the

ACCIDENT SUMMARIES BY COMMAND

	FY-65	FY-66	FY-67	FY-68	FY-69	FY-70	FY-71	FY-72	FY-73	FY-74
NAVAIRLANT	1.51	1.18	1.26	0.98	1.48	1.71	0.98	1.05	0.80	0.72
NAVAIRPAC	1.55	1.63	1.82	1.97	2.00	1.98	1.61	1.16	1.27	0.97
MARLANT	1.74	1.55	1.32	1.48	0.84	1.01	1.19	0.90	0.92	0.74
MARPAC	1.57	1.82	2.12	2.08	2.11	1.69	1.48	1.36	1.44	1.16
MARTC	1.07	1.20	1.51	1.15	1.72	1.58	1.46	1.02	1.09	0.96
NAVAIRTRA	0.85	0.89	0.70	0.89	0.67	0.58	0.56	0.40	0.51	0.36
NAVAIRRES	0.68	0.66	0.84	1.07	0.66	0.73	0.41	0.28	0.47	0.48
NAVAIRSYSCOM	1.14	0.60	1.43	1.58	1.44	1.80	2.41	1.14	1.08	1.94

* RDT&E included in NAVAIRSYSCOM FY-68 – FY-74

Fig. 1

A closer look at the operation of the Naval Air Reserve resolves the paradox and reveals a professional, safety conscious attitude which permeates the entire command structure.

The Naval Air Reserve's enviable safety record is apparent from Fig. 1. Of the eight major Navy/Marine Corps commands, the Naval Air Reserve has had the lowest accident rate in six of the past 10 years. To date, it has the lowest rate for the first half of fiscal '75.

TAR (training and administration for the Naval Reserve) personnel that schedule the pilots for their flights are seldom aware of the financial, marital, or psychological problems that may plague a particular pilot. Pilots with such problems shouldn't fly, but since information of this nature is rarely volunteered, these persons tend to fly as scheduled. In the active duty squadron, such personal problems are more easily identifiable, and a pilot can be grounded until the situation is rectified.

NEGATIVE FACTORS

- RESERVE PILOTS FLY LESS – POSSIBLY LESS PROFICIENT
- RESERVISTS FLY OLDER AIRPLANES – CORROSION AND FATIGUE FAILURES
- RESERVE AIRCRAFT FLY LESS – MORE DIFFICULT TO KEEP IN UP STATUS
- POTENTIALLY DANGEROUS PERSONAL PROBLEMS DIFFICULT TO IDENTIFY

Fig. 2

Continued

POSITIVE FACTORS

- BREADTH AND DEPTH OF PILOT EXPERIENCE
- LESS FATIGUE, LESS COMPLACENCY
- LARGE PERCENTAGE OF AIRLINE PILOTS
- LESS OPERATIONAL FLYING
- ALL VOLUNTEER PROGRAM
- WEEKEND WARRIOR NOW FLYS MORE OFTEN
- STRONG SAFETY AND NATOPS PROGRAM
- PERFORMANCE ENHANCEMENT BY NEED FULFILLMENT

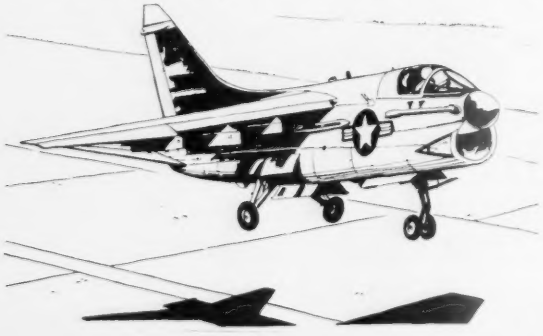
Fig. 3

But in spite of these inhibiting factors, there are numerous factors listed in Fig. 3 that effectively combine to promote "Weekend Warrior" aviation safety.

The first and most obvious positive factor is the depth and breadth of experience found in the average Reserve flight crewman. Virtually all pilots in the Selected Air Reserve are experienced naval aviators who have completed one or more operational tours. Although often they must transition to unfamiliar aircraft, the situation of dealing with the young "nugget" fresh from the Training Command is nonexistent. The combined experience these Reserve aviators (and NFOs) bring to a squadron has a significant effect on the advancement of safety.

This high experience level also applies to TAR maintenance personnel and to many Reserve maintenance men. High quality maintenance tends to offset the problem of flying with older airplanes. Another important factor is that older airplanes are also "tried and true." Most of the dangerous idiosyncrasies of a new Fleet bird have been worked out by engineering changes over the years before the Reserves get the planes – an obvious contribution to safety.

While it is true that the Reserve pilot does not fly as much as his active duty counterpart (at least in military aircraft) and, therefore, may be less proficient, he does not suffer from the fatigue that can plague, say, the active duty patrol plane pilot who may fly in excess of 80 hours a month while deployed. The Reservist may fly 50 hours during a 2-week active duty period, but this tempo isn't sustained over a 6-month deployment. And the associated problem of complacency or overconfidence which may strike the active duty pilot can be contrasted to the anticipation and change of pace that the Reservist feels as he leaves his daily routine for the monthly drill period. The Reserve aviator has the additional advantage of a strong safety consciousness caused by an awareness that his proficiency may not be optimum – he is less apt to push his aircraft to the limits of its operational flight envelope in noncritical exercises.



Another contributing factor is the large percentage of airline pilots in the Reserve program. Sometimes 20 percent or more of a Reserve squadron is composed of airline pilots. These professionals bring a firm safety commitment to the program.

The Reserve pilot, when beginning his weekend drill period on Saturday morning, receives a comprehensive safety brief prior to the commencement of flight operations. This concise, well coordinated presentation generally includes a summary of changes in operating procedures, relevant weather problems and accident summaries, and a quiz on standard flight procedures (i.e., NATOPS) for his aircraft. This program tends to instill a safety consciousness in the aviator and must be considered a strong safety reinforcement factor.

The "Weekend Warrior," furthermore, is no longer truly a "Weekend Warrior." The Naval Air Reserve, in the past few years, has experienced a reorganization designed to align Reserve squadrons more closely with active duty squadrons and increase operational readiness for "the day the bell rings" – the day of Reserve mobilization. The Reserve aviator now is required to

accumulate about 120 hours per year. Failure to achieve minimum requirements can result in probation, a disposition board, or dismissal from the program. Ample extra paid-drill periods are available to the Reservist for him to meet his requirements, and consequently, he has more than just a nodding acquaintance with his aircraft. The extra drill periods and higher flight hour minimums obviously enhance safety.

While Reserve aviation doesn't experience the operational commitments and intensity of carrier operations, the Reserve pilot must, where applicable, qualify in the same operational readiness exercises that active duty pilots pursue.

There is still bombing practice for the attack pilot and air combat maneuvering for the fighter pilot. The patrol and ASW pilots must still fly tactical training flights several hundred feet off the water. Reserve carrier pilots do not have to maintain night carrier qualification, but they must maintain currency in day carrier landings.

The Reserve flying environment, then, is probably somewhat safer than that for the active duty forces, but there is still ample chance of accident for the unwary.

Perhaps the strongest factor contributing to safety in the Naval Air Reserve is motivated, enthusiastic personnel. The program, at least for officers, is strictly an all volunteer program – Reserve pilots can leave the program virtually any time they care to. But people are in the Reserve community for a reason – they find the opportunity for human need fulfillment. Every human being has a need structure which begins with physiological needs. An example of need fulfillment in this area is the airline pilot on a protracted strike – he can buy groceries and make the mortgage payment with Reserve paychecks. Next comes the safety need (the need for security; to protect what has been gained). The Reserve retirement program can meet this need. Then there is the social need; squadron camaraderie can certainly offer fulfillment here. Even the higher order needs of esteem and self-actualization can be met in the Reserve structure, whether or not they are fulfilled in the Reservist's civilian life. A patrol plane commander, for example, can lead his crew to the highest crew readiness rating. And an officer can become the squadron commanding officer – certainly a rewarding experience.

The point is that while these needs can obviously be fulfilled in a similar manner in an active duty squadron environment, the Reservist's squadron association is, in a sense, more voluntary. He continues to serve because he sees the Reserve program as an opportunity for need fulfillment. And the chance to fulfill certain needs is what motivates people. The Reserve aviator, in other words, finds reserve affiliation a satisfying experience, a satisfying second career. Although the relationship between job satisfaction and job performance is complex, behavioral scientists find a fairly strong correlation between the two factors in jobs that require complex tasks (such as flying an airplane).

THE PERFORMANCE PRISM

$P = f(MxAxE)$

Human performance is a multiplicative function of motivation, abilities, and the environment.

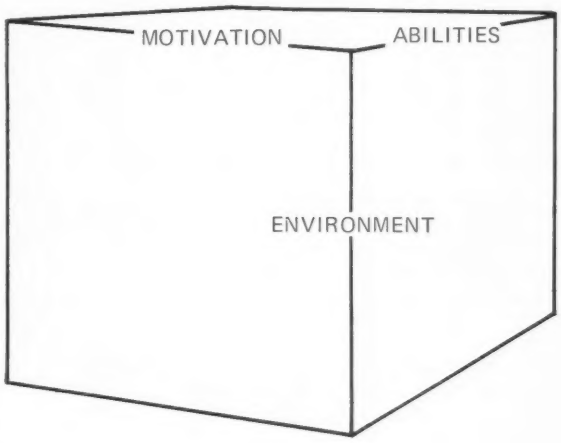


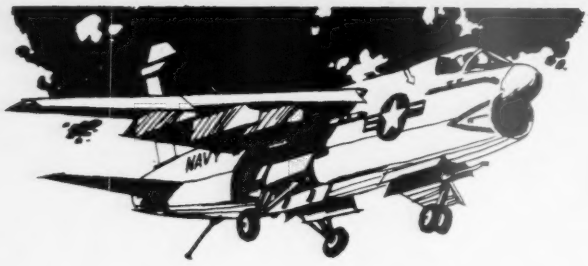
Fig. 4

The above discussion can be summarized by the concept of "The Performance Prism." Human performance is the volume of this rectangular prism and the dimensions are motivation, abilities, and the environment, as shown in Fig. 4. These parameters interact in a multiplicative manner to influence performance, and if any one factor is zero, performance is nil. If the aviation safety record in the Naval Air Reserve is a result of the performance of the individuals involved in that program, it can be seen that their performance is high because of high values in the three contributing areas.

Allowing abilities to include experience and airmanship skills, the Reserve pilots, NFOs, and maintenance personnel rate very high in this area. And as seen earlier, the motivation of the individuals involved in the Naval Air Reserve is outstanding. The result is a high level of human performance and, consequently, an enviable safety record.

The safest unit would obviously be one that conducted absolutely no flight operations. Safety is, however, a crucial and challenging adjunct to mission performance. The Naval Air Reserve has met this challenge and proved that operational readiness through safety is possible. ◄

AIR BREAKS



In a Bind. Most pilots have positioned themselves behind the power curve inadvertently by acts usually classified as Delta Sierra. Nevertheless, a peculiar one occurred some months ago which was not pilot induced.

The HAC of an SH-3D was shooting an approach to a runway at Homeplate. At about 90 feet, he began to slow down for landing and tried to ease in some collective. No response. He was unable to raise collective above 55 percent torque.

He recognized that the problem might worsen, so he continued his approach and executed an uneventful run-on landing. Safely on deck, he reduced collective without any problem.

Disassembly of the collective friction assembly revealed one friction block retention screw stripped. The micarta friction block had cocked, causing the collective to bind.

Fortunately, the helicopter was on final to a runway at the time because the pilot probably wouldn't have been able to land safely if he had been headed for a small landing zone or a ship's helicopter platform.

Even Pros Make Mistakes. The quiet of a small Arkansas town was greatly disrupted one day when frozen ducks started falling all over town. By the time it was over, nearly 100 ducks lay scattered about.

It seems that the "100-ship" gaggle had been skirting a thunderstorm when they were caught in a severe updraft, carried aloft into the storm, and frozen.

The moral we choose to draw from this is simply that no matter how much of a pro *you* are, thunderstorms never lose.

Courtesy *Aerospace Safety*

Pilot Responsibility on IFR Flight Plans

By LCDR R. E. Goolsby
ASO, VP-11

A P-3 was on a roundrobin, IFR flight plan which included a 2-hour delay enroute for practice instrument approaches. Simultaneously, an A-4 departed Point Alpha on a stopover, IFR flight plan. The P-3's destination and the A-4's stopover were the same field.

The P-3 was inbound at 11,000 and was cleared to descend and maintain 7000. Visibility at altitude was less than a mile in dense haze. As the *Orion* passed through 8000, Center cleared him to *continue* descent to 7000. The PPC read back his clearance as 7000 and received a "roger." (Right then the PPC might have suspected the terminology *"continue* to 7000" since he was already cleared to *maintain* 7000. A simple

Fire Extinguishers Are Hard. A CH-53D was returning to Homeplate from a scheduled logistics flight with several passengers and internal cargo aboard. On short final, at 150 feet, 40 KIAS, in a 12-degree, nose-up attitude, a 12-pound fire bottle fell from its retaining rack directly above the crew chief's head.

The retaining strap must have worked loose due to inflight vibrations. It zapped the crew

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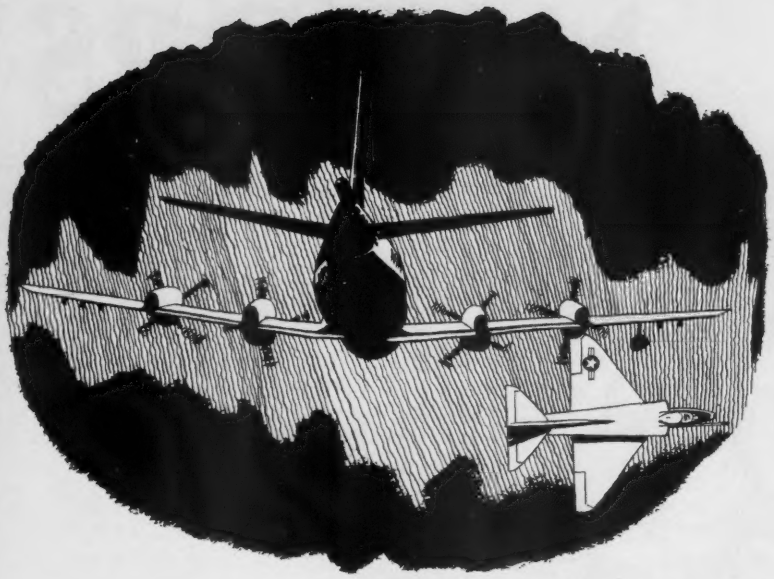


request, "Say again assigned altitude," would have alleviated any ambiguity.) Upon reaching the fix he tried several times to report holding, but couldn't get an acknowledgement.

The big *Orion* had made two sweeps around the holding pattern when the pilots saw the A-4 at 1 o'clock, slightly low, in an easy starboard turn. It was time to talk to somebody! The PPC contacted Approach Control on VHF and was advised he was expected at 6000. Just then Center came booming in on UHF and handed them off to Approach. Approach control quickly popped the A-4 up to 8000, then cleared each aircraft for sequential approaches.

A near midair report was filed and a thorough investigation was conducted jointly by squadron and FAA personnel. A review of the tapes revealed that the controller goofed. The clearances had been issued as stated, and flown by both pilots as received. Both pilots had been cleared to the same fix, *at the same altitude,* at the same time.

So, what can pilots do to cover their six, as well as their other 11 positions? One thing is to question a clearance when there's any doubt. Perhaps the PPC was a skosh complacent when he received a clue that he was cleared to *continue* descent to 7000 but merely read it back without question. It's almost certain if he had questioned his altitude assignment the controller would have caught his error and would have amended the altitude restriction.

It is highly important that pilots maintain a lookout. Don't forget that separation provided by ARTC is between *identified* traffic.

Pilots are responsible to **see** and **avoid.** Further, it makes good sense to maintain visual, radio, and radar lookouts all the time.

chief's head, then his shoulder, and continued out the open, upper half of the personnel door. The extinguisher was observed to hit the runway and the tower was notified.

A crash truck was sent to the scene and one of the troops picked up the bottle. It was returned to the squadron – *undamaged!*

The fire bottle and strap had been inspected on preflight and were properly secured. The crew chief had his helmet on and wasn't injured.

The moral of this story is obvious – you never know when your protective gear will be needed.

"I don't have to attend. I learned all about safety yesterday."

NATOPS

By COL R. A. Walker
CO MCCRTG-20

"Kick the tires, light the fires, first one in the air is leader, and we'll brief on guard."

MOST of you have heard it before, but thankfully, it is seldom if ever used to express the general attitudes of aircrews and maintenance personnel towards the professional business of flying. The phrase, of course, did not pop up without reason. It did, in fact, indicate the general attitude of a large percentage of our aviation community a surprisingly short time back in our history.

When I joined my first squadron, not too many years ago, as a brand new 2nd lieutenant right out of Pensacola, I had 300 flight hours, 100 of which were in the F4U-4 *Corsair I,* the same model airplane operated by my new squadron. There were no replacement squadrons then for a new pilot prior to his assignment to an operational unit. No such requirement was considered necessary, as newly assigned pilots, such as myself, were considered to have completed Phases I and II training in the operational aircraft they would be flying in the Fleet.

With the exception of one or two 1st lieutenants and a couple of NAPs (enlisted pilots), all other pilots in the squadron were senior captains, most of whom were combat experienced with at least 1000 hours flight time in type.

There was no such thing as a NATOPS program. I was given an open book F4U exam of about 25 questions in addition to a course rules exam, and I was ready to go. The handbook, by the way, was all of 150 pages thick. No NAMO, no cockpit trainers. It was here that I first became acquainted with the opening phrase, except for "light the fires," it was "turn the props." A typical briefing, in fact, was little more than the above phrase.

This being a fighter squadron, the standard hop would be section tactics, which invariably meant what we today refer to as ACM. My first briefing went about like this – "Bob, we're scheduled for a section tactics hop – so go ahead and get airborne, and I'll meet you over Atlantic Field at 5000 feet on squadron tactical." Then, I'd be on my way, while he had another cup of coffee.

The next time I saw the leader was as he came barreling down on me from behind, having rolled in from at least 10,000 feet, and the ACM was on (no holds barred). There was no briefing beforehand on such mundane items as altitude limits. It didn't take long to discover that the standard power settings and airspeeds that had been drilled into me in the training command

and Safety

were not applicable in the Fleet. It was full throttle and have at it until someone gave up or an engine started sputtering.

To all of us today, who now pore through 2-inch thick NATOPS manuals and attend the NAMOs, COTs, squadron lectures, etc., before that first hop, the simple procedures described above might seem desirable. But, I'm sure it is evident to all that we could not possibly operate today's aircraft with any acceptable degree of safety and reliability without the thorough indoctrination that is now standard procedure. I'm also sure that even in the days of the *Corsair I,* a good NATOPS and Safety Program would have prevented many aircraft accidents and saved many lives. It took a lot of pushing, selling, and hard work by dedicated people to establish, prove, and put into effect today's NATOPS and Safety Programs. Both programs were opposed by many experienced aircrews who felt that such programs would stymie initiative and prevent attainment of maximum combat readiness.

Fortunately, wiser commanders who could see the absolute necessity for these important programs prevailed, and during a period of time when aircraft systems, weapons systems, and support equipment made a quantum jump in complexity and costs, we were able to continually increase our capabilities and effectiveness as a combat ready aviation force – while at the same time decreasing our aircraft accident rate and aircrew losses.

I consider myself extremely fortunate to have survived during my first years of flying. Many of my very good friends, outstanding pilots, did not. Most of them, I'm convinced, would still be alive today had we had the benefit of a halfway decent safety and standardization program. We have an exceptional program now, but it takes a positive attitude to make it work. Are you, like many of the aircrews of earlier days, taking it lightly? Do you attempt to sidestep prescribed NATOPS and safety procedures because you don't feel they are important or because you just don't have time to cover or review them?

Commanders, are you ensuring that your standardization officers are on top of the NATOPS program and that all pilots in your squadron have had a *current, complete,* and *thorough* NATOPS check? These programs have become such a routine fact of life that there is a tendency to ease up on the requirement for command attention, and that's all it takes to start a sudden surge upward in *your* accident statistics. The facts speak for themselves. As I have indicated, despite the vast experience in type of most pilots 20 years ago, the accident rate was out of sight. Today, our pilots, generally with much less experience in type, are flying much more complex aircraft and having fewer accidents.

Experience is a great teacher, and we're getting lots of it. That's what the NATOPS and Safety Programs are all about; take advantage of them, and you can live to be an *old,* as well as *bold* pilot.

2nd MAW *Hot Dope Sheet*

Someone Must Fly the Aircraft

THE paragraph below is an excerpt from a personal compliment made by a company flight executive who was deeply impressed by the professional conduct and team effort of a particular crew:

"At the gate, I congratulated the crew for their handling of the takeoff situation. Reference was made to the fact that our worldwide analysis of jet accidents reflects many fatal occurrences which were triggered off by some unusual cockpit indication on takeoff and when near the ground. The excellent dialogue between cockpit/cabin personnel was also acknowledged. The Captain responded in substance, '. . . it's the simulator, it's the training, it's the crew concept. One thing they've rammed down our throats over the years is someone must always fly the aircraft.' One could only respond, 'How true.' "

United Airlines *The Cockpit*

This Will Curl Your Props

WITH the copilot in the left seat and the pilot in command in the right seat, a wheels-up landing approach was made in a U-3A (military designation for Cessna 310) to a point where both propellers contacted the runway. The pilot in command, realizing the wheels were up at propeller/runway contact, waved off, averting further damage to the aircraft. The wheels were then lowered, and the aircraft landed without further incident.

Prior to the incident, the pilot in command radioed the tower from over a town 6 miles south of the field. At this time, he was informed the wind was 100 degrees at 2 knots and was offered a straight-in approach to Runway 32. The pilot indicated he would take this approach, so the tower asked him to report a 2-mile final with wheels. The pilot rogered.

From this time until after runway contact and waveoff, the tower made several attempts to contact the pilot by radio, by flashing a red aldis light, and by trying to fire flares located alongside the runway. (Investigation revealed the flare system had been damaged during a recent runway repair, and a runway wheels watch was not on station because the landing attempt occurred after normal flight operations.)

The pilot in command reported in his statement that as the prelanding checklist was being completed, the landing gear switch was placed down, and the red gear-up position light went out. He did not observe the green gear-down indicator light since his concentration was on coaching the copilot through his first landing.

Since the UP light went out when the gear selector switch was placed DOWN, the landing gear had to come off the uplocks. The pilot in command also stated that the flaps, also electrically actuated, "hung" up at 20 degrees and would not move. This would indicate an electrical interruption highly probable.

The commanding officer stated in his endorsement:

"This incident appears to be a classic case of pilot distraction caused by a series of nonstandard occurrences on what should have been a routine landing but what was almost a full-blown accident. The pilot clearly erred in not ascertaining positively that the landing gear was down and locked. After his initial mistake, he demonstrated superior airmanship in averting an almost certain accident by executing a waveoff after the propellers had contacted the runway. In effect, he executed a wheels-up touch-and-go.

"The temporary electrical failure prevented the pilot from receiving the tower's waveoff instructions, and his concentration on the approach precluded his seeing the red aldis lamp. Had the tower been able to fire the flares at the approach end of Runway 32 or attempted to fire the flares at the opposite end of the runway (which were subsequently found to be operative), this incident could have been avoided.

"Procedures have been established to ensure that all runway systems are checked and operational prior to opening a runway after repairs have been completed. Further, all pilots have been reinstructed on obtaining a positive gear down-and-locked check prior to attempting a landing." ◄

SAFETY AWARENESS

A SEQUENCE of events leading to a recent major aircraft accident in the vicinity of a CVA began one night when a KA-6D, the offgoing tanker, fueled two F-4s just after their launch. The F-4s refueled and rejoined as a section to starboard. Initial separation was accomplished by the F-4s proceeding straight ahead, while the KA-6 maintained a shallow refueling turn to port. The KA-6 pilot reported that the tanking operation had been completed and gave his TACAN position to Tanker Control, which had requested this information.

Tanker Control thought it was painting the tanker on its radar, but apparently was painting the F-4s, and vectored the KA-6 right, toward the fighters. The *Phantom* section had shifted frequencies and did not hear the transmissions. Both F-4 and KA-6 crews saw one another just prior to impact, but too late to avoid a collision between the tanker and the No. 2 F-4.

All the circumstances and procedures which formed the chain of events will be appropriately addressed by the aircraft mishap board. There is enough information available, however, to emphasize some lessons learned or relearned:

- The pilot is always responsible for the safe conduct of his flight.
- Most air control/search radars are ineffective near and overhead the radar antenna.
- Positive control requires a positive ID of the controlled aircraft.
- Positive control can provide separation only from other known traffic. The pilot retains the responsibility to "see and avoid."
- B/Ns and RIOs must maintain their lookout doctrine at all times.

While reviewing AARs and other reports this year, it has been noted that the majority of our newer aviators have gone through the training command and RAGs doing much of their flying in a radar environment under positive control. This tends to lead to overreliance on radar and the ground controller. Prior to this accident, in FY-74, three aircraft had been destroyed and one pilot lost because of expected help from ground radar sites which never came.

Get the basics back in flying. A professional learns from his own errors and those of others.

Adapted from Type Commander's Message

EN GARDE

By LT Sergei M. Kowalchik
VA-215

TAKE these operating conditions: First brief, 0800; last recovery, 1630; weather minimums, 800 broken, 3 miles. The carrier pilot's ideal flight schedule? It means no zero-dark-thirty briefs, no gulping down dinner in a sweaty flight suit, no 18-hour days, no one shooting at you, no missing the movie, and a chance for all hands to relax from the demands of the last 9 years. The best of all possible worlds, right? Wrong. It doesn't take long for that illusion to be dispelled. The younger guys (post-SEAsia) are learning what the older guys (pre-SEAsia) have known all along, "T'ain't easy if you don't do it real often."

A day as described above would verge on a standdown in comparison to a day on Yankee Station during the Vietnam hassle. In many respects, it would be easier since there wouldn't be the usual 20 rebriefs and AOMs to attend. Relaxing would probably have been the order of the day.

On the other hand, if your standard is no flight ops 2 out of every 7 days, with your pilots averaging a hop every 2 to 3 working days, then you'd better not relax! Instead, after the first scare (if you're lucky), you quickly discover that you must be twice as alert performing the critical phases you've learned to respect, and all other phases normally handled by routine or habit had best be consciously addressed if disaster is to be averted.

This thinking is nothing new to those who have spent time in proficiency flying or who have returned to a cockpit after a nonflying shore tour; but to a carrier air wing? Deployed? To WestPac??? You've got to be kidding! Unfortunately, that's not the case. The following are some individual squadron, 7½-month deployment statistics from the recent noncombat – budgetary cutback – fuel shortage, Indian Ocean deployment. These figures *include* buildups, commencing with FMLP and CQ:

Hours: Ship – 2790 Shore – 830
CV Landings: Day – 1136 Night – 338

This spans a 10-month period by 19 pilots, which further breaks down to:

Average Per Pilot Per Cruise

Hours:	Ship – 147	Shore – 44	Total – 191
CV Landings:	Day – 60	Night – 18	Total – 78

To avoid being misleading, it should be stated that this includes 20+ days transit to WestPac and 30+ days transit from the Indian Ocean, but the point is still very pertinent. A reorientation of thinking is required of all hands involved with the flight operations effort: pilots,

ops officers, training officers, maintenance officers, supervisors, air department, safety officers, and safety petty officers.

The major problem all concerned have had to face, besides the cutback in funding, was the long, inport gaps in operations. Each at-sea period has required some degree of retraining; the amount depending on the length of the layoff. Operations officers and training officers have had to learn this when planning for the coming line period. It's an easy trap to fall into, attempting to pick up where one left off, with no regard for loss of proficiency. A constant "back-in-the-saddle" attitude must be maintained by all hands, with flight leaders paying particular attention to ensure thorough briefs. SOP is not all that "standard" when the flying is not continuous.

Little can be said about the air department that has not been said a thousand times before. A carrier's flight deck is an inherently dangerous place that will quickly and permanently remove anyone who doesn't pay it proper respect. The reduced tempo of operations has increased the danger because it has lulled the "110 sortie, 18-hours-a-day-for-30-days" veteran into complacency.

The nonveteran, after he gets over his initial apprehension of the flight deck, quickly picks up this attitude from the oldtimers. Nothing can lead to a mishap quicker. It must become the duty of every supervisor from the air boss on down to be on the lookout for these tendencies and nip them in the bud. And this is certainly not restricted to the air department. Air wing flight deck personnel are just as susceptible to this syndrome and must be corrected just as quickly. Pilots can be of great help here since they are in a position to be one of the first to observe safety violations.

It becomes imperative to avoid the "I know what he means" on a sloppy signal, or the "Well, that's the first time that happened, and we're all entitled to one mistake" on a close one. Pilots must accept nothing less than professional performance from all those around them. If not, someone is bound to pay sooner or later, and it may very well be the pilot.

Theoretically, there should not be such a thing as the *safety side of the house,* since "every man is a safety officer." Unfortunately, this is not always the case. Therefore, for all those whose title includes the word safety, the message is quite clear. Safety officers and safety petty officers must make a maximum effort to make their presence felt everywhere. Their jobs in this new environment are going to be more difficult and more critical than they were during the war years. The reason for this is twofold. One is the lack of tangible motivators to keep the emotional set of all hands focused on the mission. The airplanes no longer leave the bow loaded to return with BDA. During the war, everyone knew that he turned the wrench, loaded the bomb, or fixed that computer for a very real purpose – that of putting ordnance on a target. Now, they must perform the same functions for something called "readiness." Somehow, that doesn't add up to the same motivation.

The second reason is more subtle. They, safety officers and safety petty officers alike, have a very unpalatable concept to sell to all hands – "You're going to have to work harder because you're not as good as you used to be since you're not doing it as often." This is easy to pay lip service to, but hard to truly accept.

In summation, peacetime operations, further curtailed by a fuel shortage, are requiring a massive reduction program and a reorientation of thinking at all levels in the squadron, air wing, and ship. No individual or group of individuals can bring this about. It must be an all hands effort motivated by command attention if some of these pitfalls are to be avoided. ◄

Normally, filing a flight plan is very simple. A pilot fills in the appropriate information on a DD-175, gets his clearance, and takes off. Every now and then, however, this simple procedure becomes complicated. When it does, a pilot may find that he has joined the club of the hardworking, conscientious pilots who have been reported . . .

Overdue and Lost

1030 Navy COD 1 airborne NAS South on a flight plan to USS BOAT via Yucatan Intersection and return.

1115 Arrived BOAT.

1200 Landed and refueled. CATCC requested aircraft proceed to NAS Homeplate to pick up parcel post.

1255 COD 1 departed BOAT toward NAS South to check Homeplate weather prior to proceeding.

1315 Contacted South FSS, received Homeplate weather (5000 scattered, variable broken, and seven). Tried unsuccessfully to contact BOAT to advise proceeding to Homeplate. Filed flight plan as COD 2 and was told to switch to South Center. Contacted Center as COD 1 and cancelled second leg of initial flight plan. Switched to South Approach and requested clearance. Approach said they had a flight plan for COD 1. The pilot stated COD 1 flight plan was cancelled and COD 2 wanted a clearance to Homeplate.

1340 After receiving a complete explanation from the pilot, South Approach issued a clearance to COD 2 to Homeplate.

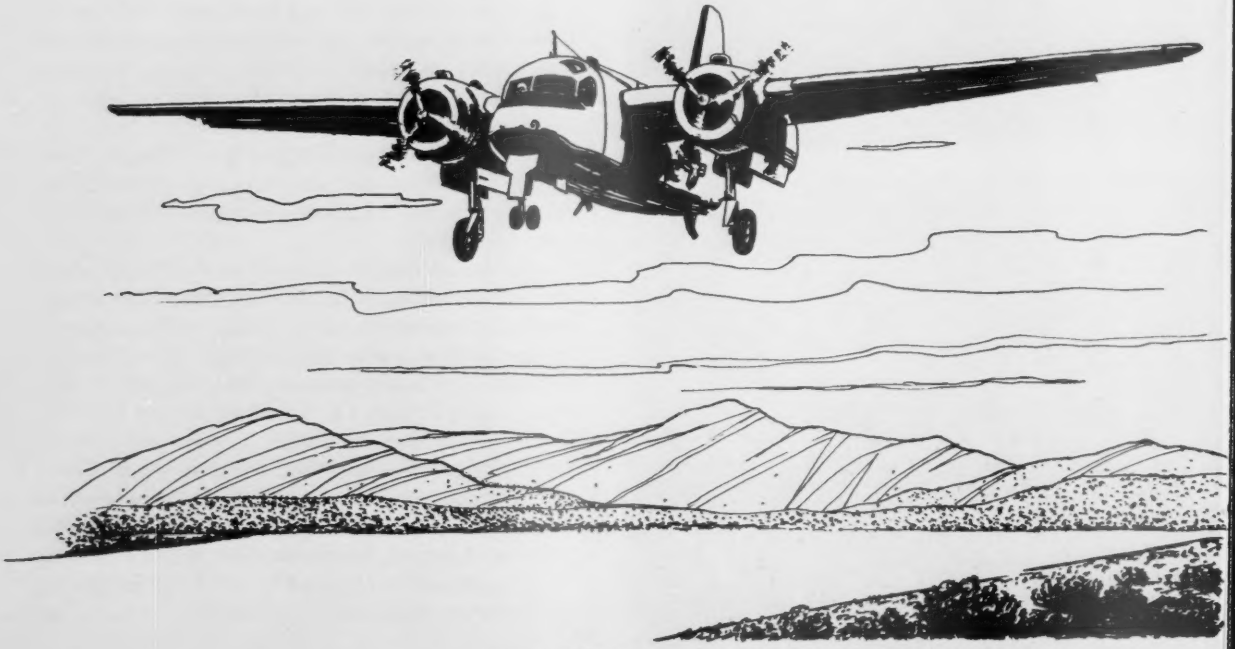
1400 Enroute, pilot checked with Harbor Point Metro for Homeplate existing and forecast weather. Received the same report he got earlier.

1540 Squadron was notified COD 1 was overdue and missing. SAR was being initiated.

1545 Squadron received a call from COD 2 advising ETA Homeplate at 1600.

1600 COD 2 landed at Homeplate. SAR effort was terminated when he said he had been COD 1.

In all the confusion of the call signs, other events were taking place which, if known, would have turned COD 2 around. For example, some time between takeoff from NAS South for the ship and ultimate arrival at Homeplate, a Severe Weather Warning was issued for the area 200 miles around Homeplate for a period of time 2



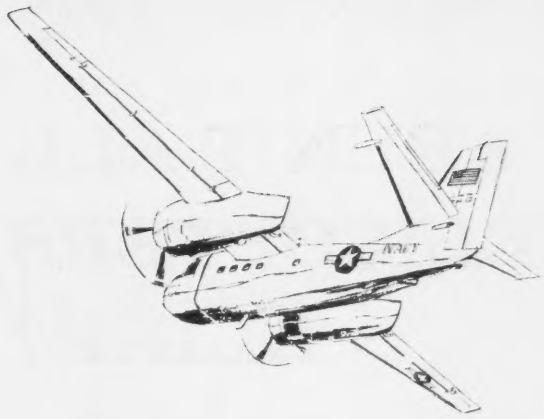
hours either side of COD 2 arrival. No one aboard ship knew it; neither did anyone at Harbor Point Metro or South FSS.

About noon, the Det OIC at South relayed the SWW to BOAT recommending that COD 1 return and not proceed to Homeplate. Yet, no one aboard ship later acknowledged receiving the call.

When COD 1 didn't return to South, his Det OIC checked South Ops and South FSS for any information on COD 1's whereabouts, but got absolutely zilch.

The squadron commented, "Unfortunately, a lot of man-hours and effort were needlessly expended in SAR preparation, and some very anxious moments were experienced by all concerned. There are many lessons to be learned from this incident.

- The pilot should have used the original call sign COD 1 throughout. This is now squadron SOP.
- Birdfarm CATCC personnel should seriously consider Det OIC recommendations. If operational necessity dictates other courses of action, the Det OIC should be informed.
- National Weather Service information has to be made available more quickly to all aviation activities – especially FSS.
- The original destination must be advised of intermediate stops or destination changes. It's hard to believe that South Approach and NAS South didn't resolve the mystery of COD 1/COD 2 location. ◄



Innovative Program

ONE of the primary functions of NAVAIRPAC is to assist operating units in attaining and maintaining a high degree of readiness. Without dynamic and effective training and safety programs, however, this is not an attainable goal. Since safety efforts are devoted to the conservation of Navy assets while sustaining the required level of readiness, the use of the term "Safety Standdown" is being revised to "Readiness Review Standdown" to more properly reflect its purpose. In an effort to further enhance our training, safety, and maintenance programs in aviation safety, a unique but proven readiness training concept will be implemented this fiscal year.

During FY-74, COMFITAEWWINGPAC set aside one day a week for each Fleet unit to devote to aircrew training, NATOPS reviews, maintenance, maintenance training, or other activities as deemed appropriate by the commanding officer based on the squadron's state of training and readiness. The dramatic reduction in major accidents involving fighter aircraft can be partially attributed to the implementation of this concept. This weekly evolution was designated as a readiness training day.

An initial objection to the program was that 4 days a week would not provide adequate flight time. Contrary to objections and forecasts, however, overall flight time did not decrease, but in fact increased after the initial growing pains. This was largely due to better aircraft availability and utilization. Not only did availability increase, but technical skills were expanded since time could be devoted to training without the pressure of meeting the flight schedule.

Nondeployed NAVAIRPAC squadrons/detachments were required to implement the policy of designating one day a week as a readiness training day by 5 August 1974. Replacement training squadrons essentially fulfill this requirement through the everyday nature of their mission; thus, functional wing commanders could exempt RAGS, if deemed appropriate. Immediate seniors in command, in conjunction with functional wing commanders, as appropriate, review the proposed schedules to ensure essential service flights are provided and that ground training will not be compensated for during the weekend. Subject to the concurrence of their operational commander, squadrons normally homeported in WestPac are invited to participate in this program, as feasible, based on their commitments.

With proper planning and supervision, this program should increase individual knowledge and training to provide for more effective utilization of our assets and result in increased flight hours and training per maintenance hour.

COMNAVAIRPAC msg

AREN'T ALL HELICOPTERS ALIKE?

By LT Ray M. Umbarger, USN
HC-6

THE QUESTION is all too frequently heard in the Navy's operational forces today. Unfortunately, some commanding officers of ships can cause problems when they make decisions on helicopter commitments without really understanding the capabilities and limitations of various helicopter types.

Aircraft, like ships, are designed and built for specialized tasks. Each model has one or more operational areas for which it is better suited than others. For example, in ASW, an S-3 *Viking* has much greater range for search than an H-3 *Sea King*, but when a contact is made, the S-3 lacks the capability to hover and dip to localize the contact. A similar comparison of helicopter models can be made.

Although both the H-3 and H-46 are helos, their capabilities and limitations keep the models separated from any fundamental area of mission accomplishment common to both. Oversimplifying, the H-3 is basically an ASW and SAR aircraft. The H-46 is a utility helicopter with a limited SAR capability. These helicopters were designed for different missions and are presently performing them well – and safely – throughout the world. It is necessary, however, to recognize these design and mission profile differences to highlight their respective capabilities and limitations.

The H-3 and H-46 are rotary-wing aircraft, and both are powered by twin GE T58-10 turboshaft engines. A major difference is immediately obvious. The H-3 has a single main rotor with a vertical antitorque tail rotor, and the H-46 has tandem horizontal rotors whirling in opposite directions. Thus, all forces are balanced in both models, but by different means. The design of the H-46 leads to a phenomenon peculiar to tandem rotor helicopters, that being a 360-degree relative wind hover capability in winds up to 30 knots.

Relative wind is important to all aircraft – fixed-wing and rotary-wing alike. In helicopter flight, relative wind determines the power necessary to sustain a hover and ultimately a safe transition to or from flight. For instance, a helo landing into 30 knots of relative wind requires less power to hover for landing than it would if the wind were only 10 knots. With less power required for landing, more power is available for waveoff or a single-engine landing.

Another big difference between the H-3 and the H-46 is the capability of hovering 180 degrees out of the wind. The antitorque tail rotor configured helo is unstable with its tail rotor into the wind, and the helo will not function efficiently. Hence, it is necessary that relative wind from the forward quadrants be available for H-3 hovers and landings.

The H-46 hovers with good stability and with less power than the H-3 in a direct, 90-degree relative wind. Let's see why. There isn't a tail rotor to get cocked into the wind causing instability; there is less disturbed air passing through the aft rotor (making it more efficient than even a 12 o'clock relative wind); and the weight of the helo is balanced between two lifting points. The fact is that the H-46 can sustain sideward flight up to 35 knots and rearward flight up to 30 knots. Of course, the H-3 can fly sidewards and backwards, too, but not as well or as fast.

The pilots of H-3s can do it, why can't you H-46 pilots?

It has been noted that COs of ServFor ships and some destroyers accustomed to VERTREPing with the H-46 are reluctant to alter course to give single-rotor H-2s and H-3s an acceptable relative wind to hover or land. This can be a dangerous practice for both the helo crew and ship's company alike. It must be realized that many normal operations for an H-46 would be unsafe for an H-2 or H-3.

Correspondingly, there are certain NATOPS restrictions for engaging and disengaging rotors of the various helo types. H-3 limitations are 45 knots from 315 to 045 relative, 30 knots between 225-315 and 045-135, and 20 knots from 135-225. The H-46 is simpler – 20 knots from 330-030 and 45 knots in all other directions. A word of caution applies. These wind directions and speeds are applicable only on steady platforms and without turbulence and gusts.

Two other specific areas, range and SAR capability, will be addressed to illustrate the difference in models. The H-3 was designed for extended ASW hovering operations, and the H-46 was designed for relatively short-haul personnel transfers and cargo delivery. VERTREP dictates a low basic weight to accommodate as large an external/internal load as possible. The tradeoff is range for weight lifting capability. The H-46 fuel capacity limits the helo to a normal cycle of less than 2 hours. The H-3, on the other hand, when performing ASW operations, has a cycle time of over 4 hours. Its basic weight, with all its sensors and ASW systems, is considerably greater than the H-46.

Problems arise when operational commanders unintentionally task an H-46 crew with a commitment that is tailormade for an H-3 crew. Such operational decisions, made without knowledge of the aircraft's limitations or without consulting the detachment OinC, frequently cause less than satisfactory results.

The H-3 SAR capability far exceeds that of the H-46 – especially the night rescue capability. The H-3, with its computerized doppler, drift detection, and feedback qualities, can easily make night, overwater rescues. The H-46 is limited by NATOPS to day SAR only.

At night, the H-46 HAC legally can only orbit, mark the position of those awaiting rescue, and wait for an H-2 or H-3 to make the pickup. Unless there is no choice, placing an H-46 in Condition 1 for night SAR is not desirable. In an emergency, the pilot of any helicopter may attempt a rescue, but if the pilot is flying an H-46, he does so as a calculated risk and in violation of NATOPS.

In summary, the H-46 is an outstanding, short-haul, utility aircraft with few wind limitations, but minimal night SAR capability. The H-3 is an outstanding ASW and night SAR aircraft with reasonably "long legs," but it is limited by relative wind parameters for takeoff and landing. But both helicopters are effective when used for the mission for which they were designed.

It is important that all operational commanders realize these limitations to avoid unsatisfactory results. Operational excellence can be achieved by the cooperation of all hands functioning with safety as the paramount consideration. Safe flight operations can only be attained by an understanding of the capabilities and limitations of the different helicopter types. All helicopters are not alike. ◄

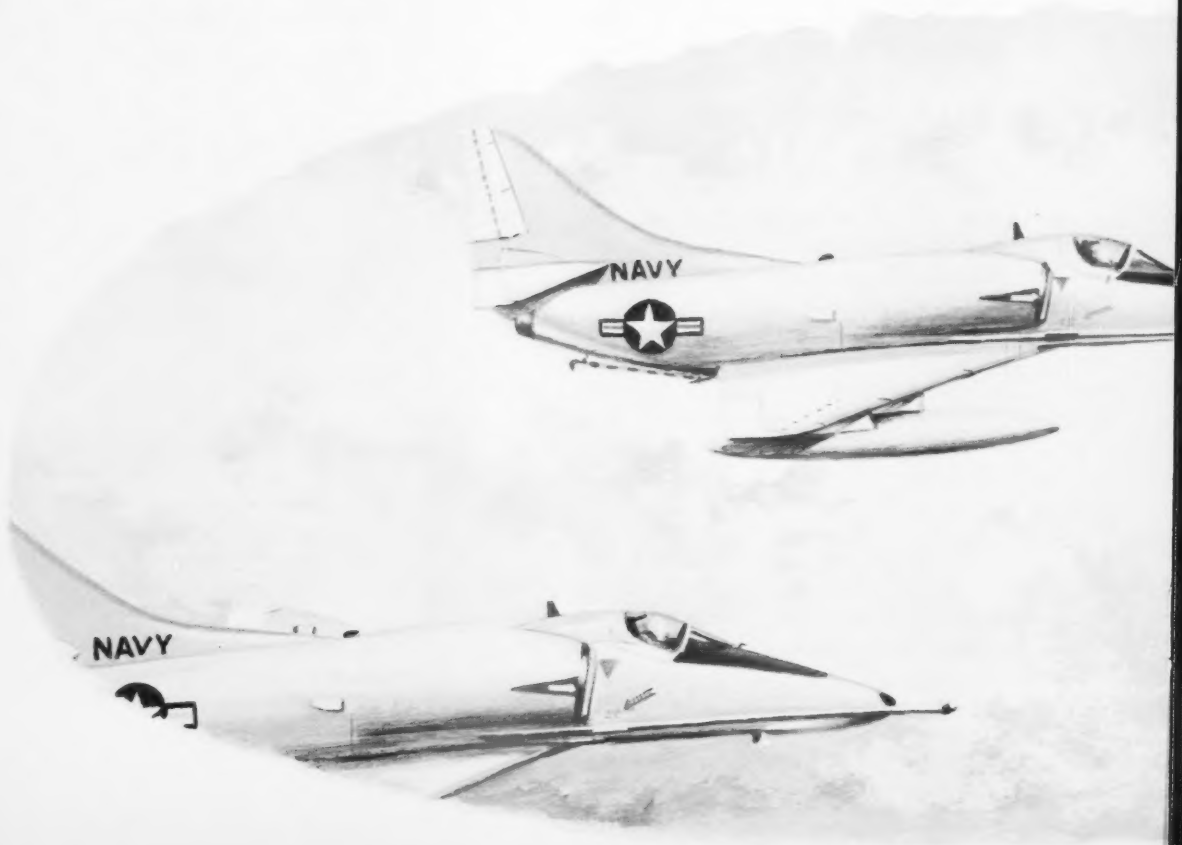
A Landmark Case

A FLIGHT of two A-4 *Skyhawks* was scheduled for a tactical/formation training mission. Brief, preflight, takeoff, and the training portion of the flight were conducted in accordance with syllabus requirements. One discrepancy early in the mission was a TACAN loss by the wingman – not reported to the lead aircraft. In addition, the wingman had no ADF, and the leader's ADF was intermittent and unreliable. This information was not exchanged by the two pilots.

At the completion of the training portion, both aircraft contacted approach control for return to Homebase in section. Position was given to Approach as west of the field without a distance because of an intermittent TACAN in the lead aircraft. The flight was descending through 10,000 feet, heading east, when approach control obtained radar contact at 34 miles. Neither crew heard nor acknowledged this call. The flight leader had visual contact with a town that he mistakenly identified as a known landmark; thus positively, he thought, geographically fixing his position southwest of Homefield.

With this knowledge, the flight continued to descend, turning to a northerly heading, to VFR conditions underneath at approximately 1500 feet. At this point, the intermittent TACAN/ADF and lack of radio contact with approach control was not of major concern to the flight leader since he was positive of his position and intended to proceed back to the field VFR.

Once underneath the overcast and in total visual contact with the ground, it became apparent that the landmarks were not familiar; and it was obvious that the flight leader's assumption, however positive, was erroneous. The flight leader also believed that his



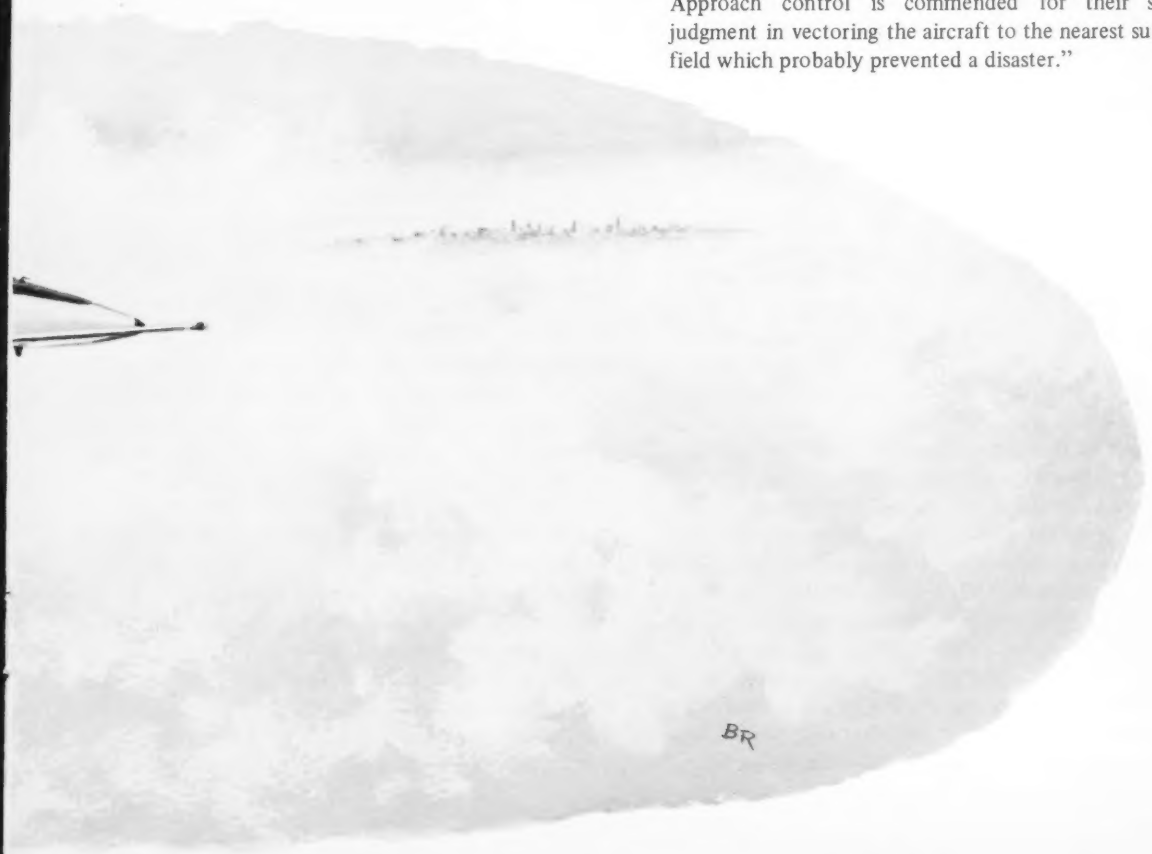
inability to maintain radio contact with approach control was due to an intermittent and weak radio in his aircraft and passed the lead to his wingman, indicating that lead had radio failure. The new leader immediately commenced a climb and turned southeast. After an 8-minute interval, radio contact with approach control was reestablished, but not radar contact. The new leader declared minimum fuel with time remaining of 15 minutes and continued his climb to 23,000 feet. Approach control still had no radar contact and instructed the flight to squawk emergency. The new wingman at this point lost visual contact with the lead as he was looking for landmarks.

Radar contact was finally established with the new lead at 40 miles west of Homefield. He declared emergency fuel, 5 minutes remaining, and that he had lost his wingman. Approach control vectored the lead aircraft with an enroute descent to a nearby civilian airport, the nearest suitable field. The wingman, after losing sight of the leader, reestablished his position by visual landmarks and headed towards Homefield beneath the cloud layer. Upon obtaining radio and radar contact with approach control, he was also vectored to the civilian airport. Both aircraft made uneventful landings with approximately 350 pounds and 550 pounds of fuel remaining, respectively. At the start of this incident, respective fuel states were 1700 pounds and 2000 pounds. The total elapsed time for the incident after initial contact with Approach was approximately 35 minutes.

This incident resulted from the flight leader's certainty of his position based on what he believed to be a known landmark. He was mistaken. In spite of less than reliable navigational aids, he committed his flight to low altitude because he was absolutely positive of his position. Once committed and below the overcast, the flight was in an emergency fuel situation. From that point, a combination of a lack of communications between the flight and an initial turn under the overcast that took the flight away from the station led this flight into a situation that nearly ended in the loss of two aircraft.

The commanding officer stated in his endorsement:

"This incident may be classified under pilot complacency and lack of communications; complacency which results in routinely operating from a familiar base and in a local operating area. The lack of communications between the pilots is obvious. Approach control is commended for their sound judgment in vectoring the aircraft to the nearest suitable field which probably prevented a disaster."



The concept of a safety department organization which includes the quality assurance function is still under evaluation Fleetwide with resolution of the matter expected in the near future. The Naval Air Training Command, however, has already adopted this concept. This article is a report on the experience of one training command squadron, VT-26.

THE SAFETY DEPARTMENT WORKS

By LT Phillip A. Barry
Ass't. Safety Officer
VT-26

OVER the past year, the safety department concept has proved successful in attaining the safety goals of our squadron. Primarily, this is evidenced by completion of a year and a half of accident-free flying while completing all training requirements. This includes over 40,000 hours and over 600 student carrier landings. There are, however, other more subtle achievements which underlie this accomplishment.

The command has been able to use the safety department as a management tool to accomplish a desired goal rather than use the safety officer as a special assistant to "stamp out brush fires" or as an ineffective one-man crusade for safety. In short, the safety department concept has permitted our squadron to make safety a "business." The following are specific areas of achievement with noteworthy advantages.

Quality Assurance/PMCF (postmaintenance check flight). Whenever the safety department concept is mentioned, the first objection, inevitably, is taking QA out of the maintenance department. The operation of QA within the safety department has functioned smoothly with no major problems. It has operated as a very effective "check and balance" system. The training programs, CDI supervision, safety UR reporting, etc., all operate as effectively, if not more so, than before. The QA personnel seem less reluctant to actively pursue a problem within the maintenance department now that they are not a part of it, at least administratively.

The most notable achievement attributable to this attitude is QA's system of monitoring and reducing repeat gripes. The PMCF officer, in conjunction with the QA division, has instituted an effective program for training and qualifying PMCF pilots, resulting in a high

degree of standardization. Because this all takes place within one department, with QA acting as liaison between maintenance and safety, a much smoother, more effective evolution has resulted.

NATOPS Officer. Historically, the NATOPS officer, working for the operations officer, was tasked with evaluating the effectiveness and quality of pilot standardization and training programs. This meant that as a member of the operations department he was supposed to objectively check the effectiveness of that department, analogous to quality assurance being under the maintenance officer. With the addition of NATOPS to the safety department, the check and balance system can function more effectively. Through his monitoring and scheduling of pilots for their NATOPS/instrument checks, the NATOPS officer has proven to be beneficial when dealing with a wide diversity of backgrounds and experience levels. The commanding officer, through recommendations from the NATOPS and safety officers, can more effectively utilize personnel and assign billets based on an individual's knowledge, experience, and performance on NATOPS/instrument checks and exams. This objective information can be of great assistance to the command when assigning such key collateral duties as PMCF, membership on NATOPS and instrument boards, etc.

Ground/Industrial Safety Officer. The first improvement in this area is an active participation and interest in the Enlisted Safety Council. This brings to light some problem areas which might not otherwise surface. The second improvement is the recent implementation of a motorcycle safety course which hopefully will reduce the annual toll in lives taken by motorcycles.

Safety Information and Education Officer. In his capacity within the safety department, he has been able to disseminate current, applicable safety information to pilots through a series of periodic lectures. Included are such items as past and present aircraft problem areas, procedural techniques related to safety, and general safety information.

Records and Reports Officer. The creation of this billet within the safety department has allowed the safety officer to pursue other managerial responsibilities. This billet performs the research and, with assistance from QA, compiles information and prepares safety UR/Incident reports which are submitted to the safety officer for final approval.

General. The advantages of the sheer numbers of personnel within the safety department are numerous. First, it gives the safety department more exposure to all facets of squadron operations, thereby creating an atmosphere of safety consciousness never before possible.

Secondly, the safety officer is no longer just one individual who is expected to cover all aspects of safety within the squadron. He is now a department head who can maintain formal as well as informal lines of communication with all other departments while delegating authority and responsibility for specific undertakings within his own department. He has become a safety program manager who can plan, organize, direct, coordinate, and control all aspects of the safety business.

Thirdly, this concept enables more junior officers to become engaged in the safety business. This will reap significant benefits in the future as more and more officers/aircrews become aware of the operation and goals of the safety program within naval aviation. ◄

notes from your flight surgeon

Keep It Dry

"KEEP your powder dry" has been good advice since the first settlers arrived on these shores. And it applies to your survival flares as well.

A pilot screwed up his survival signals recently when he broke the metal tops and exposed the insides to seawater while he was trying to get someone's attention after he ejected.

Naturally, the flares wouldn't fire.

Train . . . Retrain

THE problem of late release of the parachute is a recurring one. Koch fittings are always higher when the parachute is deployed. Everyone knows this. Few remember when the pressure's on.

Perhaps the development of manual/automatic separation and flotation equipment will answer this problem, especially for the injured pilot.

Until then – train and retrain.

Flight Surgeon in MOR

Gloves On

DO you use your Nomex flight gloves for miscellaneous gardening around the house? How about driving to work on a cold day? A recent midair points up the need to have these gloves where they were designed to be used and where they can do you the most good – on your hands , in the cockpit.

Flames in the cockpit after a collision between two F-4s burned the lead pilot before he ejected. If he had been wearing his Nomex flight gloves, his hands would have been protected.

He claimed the gloves did not fit well and that they kept him from feeling cockpit switches.

"I have two obvious recommendations," says the flight surgeon on this accident board. "First, make sure your gloves are a proper fit, and then wear them. Second, if they make you feel clumsy, practice to overcome this restriction. Practice blindfold cockpit procedures – releasing Koch fittings, using survival gear, etc. – all with your gloves on."

On the Line

TO state the old maxim another way: it is incumbent upon all of us in naval aviation to prepare ourselves, both physically and mentally, for the possibility that *this* time out of the chocks, circumstances may call upon us to lay it all on the line.

Flight Surgeon in MOR

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SALT AND YOU

SALT tablets – no more than three a day if you're eating a normal diet and none at all if you're living on field rations. That's the latest word from BUMED.

Used to be in hot weather you loaded up on salt. People thought that your body would use the salt it needed and get rid of the rest. Not so, say the doctors now.

Some folks even thought that if you took salt tablets you could get along on less water. *Definitely* not so! The more salt you take on, the more water you need.

Then there was the old "water discipline" theory. The idea was that your body could be conditioned to operate on inadequate water. This, too, is out.

Listen. Very recent studies show that if you eat a normal diet and take up to 2 grams of additional salt (that's roughly three tablets) a day, it doesn't reduce your chance of suffering heat cramps or heat stroke. And it reduces your chance of getting heat exhaustion only slightly. If you take *more* than 2 grams of extra salt a day, your chances of suffering all three kinds of heat illness – heat cramps, heat stroke, and heat exhaustion – actually *increase.*

Say you are working in a hot environment and trying to get used to it. During the first 4 or 5 days, you may require up to 2 grams of salt more than what's in your food. Reach for the saltshaker. That's the best way to compensate. If you do use salt tablets, don't take more than three a day. And be sure to drink enough water to balance the extra salt.

If you are in the field and eating "C" rations, remember these are heavily loaded with salt as a preservative. A day's field ration averages 25 grams of salt plus the 5 grams of extra salt in packets, so skip the salt tablets under these circumstances. And be on the watch for symptoms of too much salt.

What are the symptoms of too much salt?

Vomiting and diarrhea, sore muscles, fatigue, decreased work capacity, relatively low sweat rate, and high body temperature. Your metabolism gets fouled up, and your heart doesn't beat as fast. You can go to near shock levels during physical work. Your kidneys have to work harder. After exhausting work, there may even be blood in your urine. The body's ability to get used to heat and regulate temperature is impaired. You won't think as well, and you can become disoriented. All from too much salt!

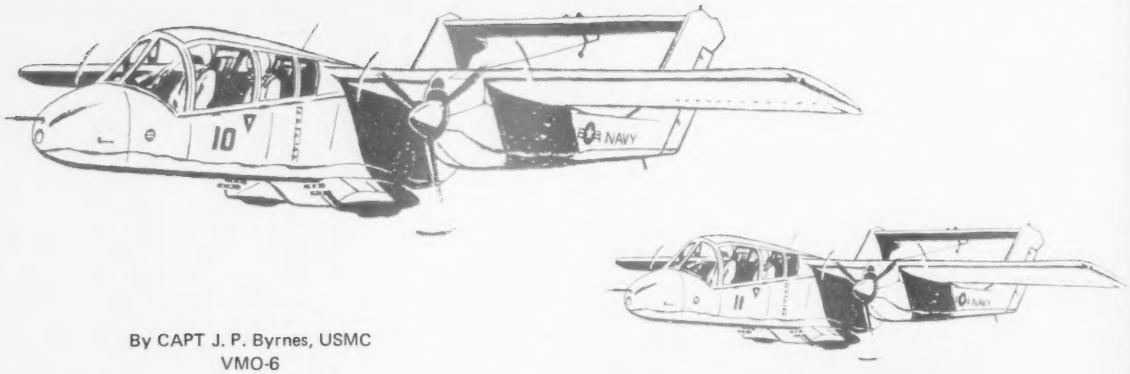
Anybody working in hot compartments or out in hot weather should have water to drink. But drink in moderate amounts – more than enough to quench your thirst but not enough to cause abdominal discomfort. The doctors say the average person should drink enough water to produce 2 pints of urine every 24 hours.

You *can* work in emergencies with inadequate water. So can a water-cooled engine run with a leaking radiator. But in both cases, things go from bad to worse until you can't fix the damage.

When you must work and your water supply is limited – in a survival situation, for instance – hard work will make you uncomfortable. You can stand it for a workday, but as the day goes by your efficiency goes down. During the first hour of exposure to a hot environment, conserve water. After that, drink your water ration in small sips. This spreads the water ration over the intended period.

Consistent with getting the job done, keep physical activity to a minimum. Avoid working in direct sunlight when you can. Take advantage of shade and the time between sunset and sunrise. Aboard ship, if you have to work on portable equipment or machinery, where practical, take your work to cooler spaces.

Remember: Lots of salt tablets are not the answer to heat problems. If you must use salt tablets, don't take more than three a day if you're eating a normal diet. And don't use salt tablets at all if you're eating "C" rations. ◄



By CAPT J. P. Byrnes, USMC
VMO-6

"VFR..."

IN August 1974, I launched from MCAS Futema for NAS Cubi Point with a flight of three OV-10s for participation in Operation Pagasa III. Filed for a refueling stop at Tainan, Taiwan, we planned to check the weather there to decide if the flight to Cubi Point would continue. The first leg of the flight was completed without incident and as the aircraft were being refueled, we checked the weather. After receiving a weather brief from Tainan ops and another from Cubi Point via Autovon, we determined that the flight would remain at Tainan until the weather at Cubi improved.

After a 2-day delay, Cubi weather was forecast to be considerably better. As the flight leader, I once again checked with Cubi via Autovon to confirm the reports. Besides a scattered to broken layer over Tainan, the weather was forecast to be VFR enroute and at destination.

The flight was briefed to launch IFR at 10-minute intervals and Nos. 2 and 3 were instructed to check in with the leader on HF and FM once safely airborne. Thirty minutes after leader's takeoff, all aircraft were airborne and radio checks completed. At this point, all three *Broncos* were working perfectly. Everything proceeded normally for the next hour or so with normal fuel transfers working as advertised. Initial contact was made with Clark Airways on HF and Clark reassured that Cubi weather was still VFR.

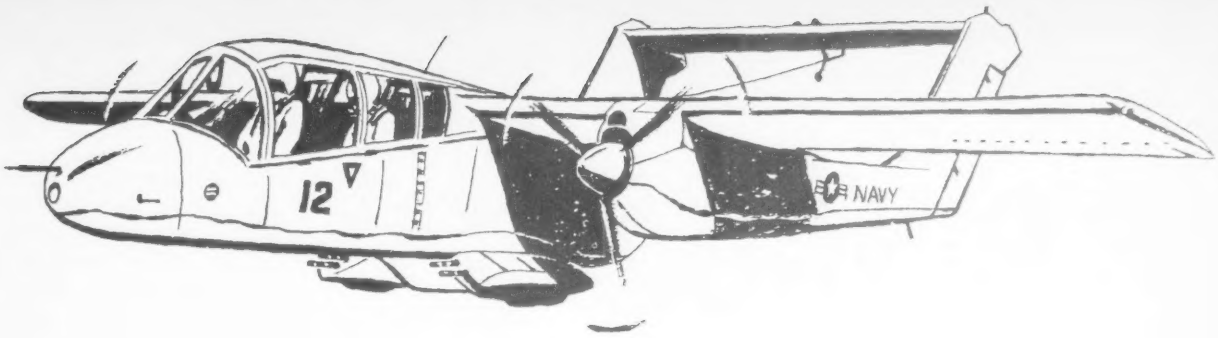
Just after this contact, my TACAN became erratic and then died. I contacted Clark Approach (UHF) and told them of my nav aid failure and requested and received radar vectors to Poro Point. I experienced some trouble with UHF communications but was finally able to copy their vectors and understand that Cubi was still reporting VFR. Just after entering a light cloud deck, the "OFF" flag began to show intermittently in my attitude gyro. With only a slight hitch in my voice, I again contacted Clark and received clearance to VFR on top. By this time the attitude gyro had failed completely, but it appeared that my problems would have little effect on my flight since Cubi weather was no sweat.

Visibility at flight level was unrestricted and the cloud decks below were dissipating rapidly. My optimistic estimate of the situation proved to be quite premature. After approximately 30 minutes, 60-70 miles north of Cubi Point, it became very obvious that I would be unable to continue VFR. I attempted contact with Clark Approach and after considerable difficulty, finally established comm. I received clearance to orbit VFR at my position and was advised that the "no sweat" weather at Cubi was now obscured in heavy TRW with Clark weather rapidly deteriorating!

By this time, the No. 2 man in the flight requested and received clearance to rendezvous with me in the event a section instrument approach to Cubi became necessary. He was also advised that the Cubi/Clark weather was caused by a line of thunderstorms which appeared on the radar to be about 50 miles deep. Based on this information and the below mins condition at both Cubi and Clark, I elected to join on No. 2's wing, deviate west around the thunderstorms, and approach Cubi from the southwest.

We proceeded west along the storm line, but as we finally turned south, it became painfully obvious that the weather was considerably more widespread and severe than we had been led to believe.

Approximately 100 miles out, No. 2 lost TACAN lock with Cubi Point and was unable to regain contact with either Clark or Cubi. Fuel now became a critical consideration. As close as I could determine, we were



No Sweat"

120 miles west of Cubi Point (40 minutes flight time) and had about one hour (600 pounds) of fuel remaining. No further delay could be tolerated so I tucked in under No. 2's port wing as we went IFR heading 090 degrees. After about 10 minutes, we penetrated a heavy thunderstorm cell and in the rain, turbulence, and severely restricted visibility, I lost visual contact with the lead aircraft.

I immediately transitioned to the gages (partial panel), came left 30 degrees, and started climbing. Fuel state – 400 pounds (about 40 minutes). To ensure terrain clearance and increase transmission range, I climbed to 12,500 feet, heading 060. Once established in the climb (needle, ball, airspeed), I dialed in IFF 7700 Emergency and Emergency Transmit on UHF. My series of Maydays, broadcast in the blind, received no response. It began to get very lonely up there.

After what seemed like an eternity, I was contacted by a CVA tower on Guard, requesting situation and intentions. When advised of my fuel state (approximately 300 pounds), Tower advised that an A-6 tanker was being vectored to my position (some trick for an OV-10 to refuel in *any* weather). I considered requesting vectors to the ship, thinking any port in a storm would do. As I began to think of ways to tell my CO how I happened to wind up on the flight deck of USS BOAT in one of his OV-10s, a friendly female voice from Cubi Point came up on Guard and requested my situation. She soon established radar contact and issued radar vectors to Cubi. She also advised that my wingman had been contacted and was also being vectored to Cubi Point. With the 20-minute low-fuel warning light burning brightly (activated at 200 pounds), I was cleared to descend to 5000 feet (still IFR) and was advised that my wingman had found a "hole" in the cloud deck over Grande Island. I was vectored to that general area. All this time my back seat (aerial observer) had been just aching to put his talents to work and he diligently began to look for something resembling terra firma. The "Eyes of the Division" came through again as he spotted the tip of Grande Island just as we passed over it heading southwest. Needing no further motivation, I put the nose in the hole and broke out at 800 feet on the downwind for Runway 25. Fuel state was 100 pounds, or about 10 minutes remaining.

After landing, we learned that Cubi Point had suffered a complete electrical failure during the heavy thunderstorms and had lost all radar, TACAN, and communication capability.

There are a few lessons to be learned from this little adventure, and I'd like to share them:

1. Partial panel flying is not a thing of the past. It is a procedure at which every naval aviator should be proficient. Practice it now and then . . . don't wait until it happens under actual conditions.

2. "The time to practice your emergency procedures is not during the emergency." Sound familiar? It should. It's an adage that has been bantered around naval aviation since Grandpa Pettibone was a boot . . . and it still applies!

And last, but not least, when everything is going well and you decide to lean back and relax – don't! The cockpit of an aircraft is no place for complacency. I know. ◄

BINGO BOX

AFTER completing an air-to-air photo mission, the pilot of an RF-8G *Crusader* commenced an approach from 19,000 feet. He had launched earlier from a "twenty-seven charlie" CVA – his home away from home. Breaking out of the overcast at 2500 feet, he switched to Approach and "dirtied up."

On descent to 1200 feet, the pilot sighted his interval (an A-7); and since he appeared to be closing, reduced to approach speed (140 knots). Simultaneously, the *Corsair II* reduced to 130 knots since he, too, was overtaking his interval (another A-7). As a result of all this, the *Crusader* was waved off by the LSO at one-fourth mile because of a fouled deck. As the F-8 proceeded upwind, the decision was made by Air Ops to bingo the photo bird. The divert field was 91 miles away. Fuel state was 1990 pounds.

At bingo cruise altitude of 23,000 feet, the aircraft was still in the soup. Fifty-five miles from the divert field, the pilot squawked code 7700 on the IFF and attempted contact with a GCI site and the divert field approach control, but without success. A few minutes later, he made initial radio contact with the tower. He was 36 miles out, at 23,000 feet, with 1000 pounds of fuel remaining. He declared an emergency because of low fuel and was advised that the field was below minimums for the runway in use (Runway 10). After reiterating his emergency condition, he was advised that he could get a GCA straight-in to Runway 28 (overrun arresting gear only), but that he would have a quartering tailwind at 5 knots.

A normal GCA ensued. At 1½ miles, he acquired the strobe lights and descended below GCA glide slope, slowing the aircraft to 135 knots, in an attempt to land on the numbers. He noted a heavy rainshower which obscured the upwind half of the runway.

The *Crusader* touched down on centerline at approximately 135 knots within the first 500 feet and continued on centerline for an estimated 4500 feet, at which time a slight left drift developed to within 10 feet of the runway's edge. Airspeed at this time was 80 knots. The pilot corrected the drift, but at 6600 feet from the approach end, the left tire blew. Near the 7000-foot marker (from the approach end), the pilot, unaware of the blown tire, secured the engine and lowered the hook. The left mainmount departed the hard surface (speed 20 knots) and struck the intersection of the runway and an asphalt service road, breaking off the port main landing gear. The aircraft came to rest on its left wingtip and the port side of the fuselage. The pilot exited unassisted, pinned the ejection seat, and closed the canopy.

During the investigation, it was brought out that the weather at the divert field was significantly worse than forecast. At the preflight brief (90 minutes before takeoff), the divert field weather was forecast to be 3500 feet broken, 8000 feet overcast, visibility 2-4 miles in rainshowers. Twenty minutes later, the ship's meterology office passed a special sequence report to all concerned that the divert field weather was 1000 scattered, 1800 broken, 3500 broken, visibility 2 miles in rainshowers. This latter report indicated that divert field weather was deteriorating. The clincher came, however, about one hour after launch when the ship's metro received a special sequence report giving the divert field weather as 300 scattered, 1200 overcast, visibility 1 5/8 miles in rainshowers. Unfortunately, metro never passed this report to air ops.

Had air ops received this latest report, there is little doubt that the F-8 would have been retained in the landing pattern and not been directed to bingo. Nevertheless, an endorser to the AAR took air ops to task for diverting the *Crusader* on the basis of weather information which was more than 3 hours old. The endorser stated in part:

"Prudence and good judgment dictate exhausting all possibilities of obtaining an updated weather report prior to diverting any tactical aircraft. Since the special sequence report had been received, a call to metro should have accomplished this. The pilot was placed in a near *extremis* situation by a series of circumstances beyond his control. He had no opportunity to attempt a landing aboard ship and was diverted to a strange field where the weather was below approach minimums. Nevertheless, he was committed to a landing attempt because of emergency fuel state.

"This endorser considers the primary cause of this aircraft mishap to be inadequate planning and insufficient preparation to conduct flight operations on the part of the ship. There were several unfavorable factors that required a more prudent and careful evaluation of existing conditions prior to conducting flight operations. The distance to the divert field was such that 1) bingo fuel and maximum trap fuel weight of the RF-8G very nearly coincided, 2) weather conditions evidently precluded utilization of an overhead recovery tanker, and 3) the divert field weather had deteriorated to an unsatisfactory condition. Failure to carefully consider the possible consequences of these conditions eventually led to the accident."

C-2A RUNWAY DEPARTURE

A C-2A on a day VFR fam flight returned to Homefield for a full-stop landing. Wind was 80 degrees port (relative to runway heading) at 10 knots. On landing rollout, after an on-speed, on-centerline touchdown, the aircraft continued on centerline until the pilot at the controls (left seat) attempted to bring the power levers over the hump into taxi range. At this time, with airspeed approximately 80 knots, a slow right drift began.

The pilot at the controls added left rudder, but no change in heading resulted. The drift continued, and the pilot tried to use differential power with no effect. At this point, the pilot in command (right seat) ordered "nosewheel steering" which the pilot at the controls applied most discreetly with no resulting change in drift rate. The pilot at the controls then applied port brake, and the brake locked. The port tire blew 130 feet later.

Prior to tire blowout, the pilot at the controls felt departure from the runway was imminent and centered all controls to ensure that departure and rollout off the runway would be straight ahead with no skid. After runway departure, the pilot at the controls noted the pilot in command also on the controls, whereupon he "let go." The pilot in command secured both engines, simultaneously placing the condition levers into feather. Both emergency cutoff handles were pulled while stopping, and engines were visually checked for fire. The aircraft stopped 450 feet from the edge of the runway.

Cause factors in this incident were:

- Disregard of NATOPS recommended landing procedures. NATOPS recommends two-thirds flap setting for crosswind landings. NATOPS further states that raising the flaps as soon as the main gear touches down helps hold the aircraft firmly on the runway where directional control can be maintained by use of rudders and nosewheel steering. Although a full flap landing in 10-knot crosswind conditions is within the capability of the aircraft and although initial rollout was on centerline and under full control, the flaps, in fact, were never raised; and directional control problems were, therefore, needlessly aggravated.

- Misconception of pilot at controls (trainee) of exactly how nosewheel steering and application of differential power should be applied. Safety Center analysis of FDR (flight data recorder) tapes shows that the pilot actually applied differential power on the No. 1 engine when it should have been applied to the No. 2 engine.

- Failure of the aircraft commander to properly assume control of the aircraft soon enough allowed the trainee to deviate too far, and an *extremis* situation developed quickly with only minimal corrections applied. Although on "hot mike," the pilot in command failed to make a positive statement that he had control of the aircraft.

- Pilot fatigue is a probable factor as this was the trainee's second flight of the day. He had made a total of 23 landings. Although his flight time for the day was only 4.0 hours, the incident occurred at the end of his full crew day of 12 hours.

- Lack of proper crew coordination/brief is also considered a causal factor. The pilot in command stated that he had not specified any flap movement on deck. The trainee, however, stated that he had been instructed that flaps would be raised when the aircraft was comfortably on the runway.

EXAMINING THE EXOTIC

By LTCOL W. G. Gabella, TC, U.S. Army
Technical Research and Applications
USAAAVS

TO PREVENT future shock in the 21st century, it is necessary to begin examining new and exotic (by present standards) concepts and technologies for the purpose of assessing their impact on the safety of aviation systems beyond the 1980s.

Only one thing is certain in dealing with the uncertainties of the future – there is no lack of new wizardry to survey. Mysterious as they may seem, many of the new ideas listed below already have a significant amount of research and development underway.

As might be expected, the bulk of the new ideas floating around are directed to both flight operations and aircraft maintainability and reliability. These include:

- Electrostatic Autopilot Systems
- Holographic Guidance and Landing Systems
- Rotary Wing Personnel Escape Systems
- Aircraft "Health" Reporting Systems

Electrostatic Autopilot Systems. Space research has confirmed that the earth has an ESF (electrostatic field) as nearly well-defined as the electromagnetic field. Preliminary research has shown that, from the surface to about 15,000 feet, the ESF direct current voltage decays as a predictable linear rate with altitude. Above 15,000 feet the ESF becomes nonlinear.

Radio-controlled model airplane enthusiasts have leaped on this knowledge to construct low cost ($30-$50) autopilot systems for their craft. Two-axis autopilot systems for models consist of simple pairs of ESF field sensors of opposite polarity about both the roll and pitch axes, a simple bridge circuit, a power source, and control linkage.

By placing, say, a negative charge sensor in one wingtip and a positive charge sensor in the other, and utilizing these sensors in conjunction with the balanced bridge circuit, differences in ESF voltage are measured. Through appropriate control linkage interfacing, slight differences in wingtip voltages are "bridged-out" to return the aircraft to level flight by "nulling" the ESF differential to zero.

The degree of stability and control this simple system affords is nothing short of remarkable. Model airplanes equipped with these devices have been put into inverted flight with the devices turned OFF, then snapped into stable level flight by merely turning the devices ON.

The applications such inexpensive autopilot systems would have in rotary wing, low level, and nap-of-the-earth combat operations – especially those at night or IFR – bear investigation.

First, properly conceived and designed, an ESF autopilot system could maintain an *exact* altitude profile without radiating telltale emissions such as the radar altimeter does. Thus, the passivity of the ESF autopilot would help minimize ESF signature that could aid an enemy in detecting the aircraft's presence.

From the standpoint of cost, the ESF autopilot is extremely attractive. A two-axes system with altitude hold capabilities is projected to cost between one-half to three-fourths the cost of current equivalent systems.

Holographic Guidance and Landing Systems. One of the more exotic and exciting concepts for future guidance and landing systems is that of holography. Through the use of multiple laser beams, it has been possible – in the laboratory – to acquire and project three-dimensional pictures of objects. These visual presentations are called holographs.

The projection of three-dimensional images in itself is not new; witness the "Magic Lantern" shows of the 19th century as well as the stereoption devices found in many homes of that era. What is new about holography, however, is that all sides of a three-dimensional object can be scanned and projected – one can literally see around and behind the object scanned.

The aviation safety implication here is that it is conceivable to develop onboard guidance and landing systems which would give the pilot (through the medium of a head-up display) a "real world" presentation of his approach and landing path regardless of the existing ambient light or visibility conditions.

In addition to landing systems, holography could be used to provide real world VFR flight guidance information under IFR conditions. Holography would also be a boon in heavy lift helicopter operations for acquiring and discharging loads in IFR conditions or at night. In this case, the load-controlling crewmember would refer to holographic, real world presentations to fly his hook to the cargo pickup and discharge points.

There is another profound military implication to holography – target acquisition. It is conceivable that systems can be developed which can see around and behind solid obstacles such as tree lines, ridge lines,

houses, etc., for the purpose of reconnaissance and target acquisition.

On the lighter side, it is also likely that the reader's grandchildren will see holographic movies as well as holographic television presentations.

Rotary Wing Personnel Escape Systems. As a result of joint funding by the Army and Navy, a good deal of preliminary research has been completed on rotary wing personnel escape systems for attack helicopters. The Navy has taken the position that such a system will be incorporated on AH-1J *Twin Cobra* aircraft beginning with the 1975 production of this model. The Army, meanwhile, has no requirement for such a system in the Advanced Attack Helicopter, although enough preliminary effort has been completed for both competitive contractors to "go" with the system should a decision to do so be made at a later date.

The escape-extraction system consists of ballistic separation of the blades, canopy jettison, and extraction of the pilot and gunner with rocket devices. Development specification calls for a "zero-zero" (zero airspeed-zero altitude) capability. The upper end of the escape envelope is expected to be around 150 knots.

Unfortunately, the concept of rotary wing escape systems tends to engender highly emotional responses from both its advocates and opponents.

Opponents of the system point to the increasing structural strength and reliability of the helicopter. Their argument is that funding would best be spent on improving these facets of helicopter development than on personnel escape systems.

On the other hand, the advocates of escape systems counter by saying that antihelicopter weaponry is also growing in sophistication and destructiveness. They also argue that had helicopter escape systems been available for passengers as well as crew in Indochina, the loss of some 2000 personnel would have been prevented if these escape systems functioned successfully only 35 percent of the time.

Aircraft "Health" Reporting Systems. Aircraft "health" reporting systems development is proliferating at an exponential rate among the triservices. Indeed, in the hothouse atmosphere surrounding this development, various aircraft diagnostic and reporting systems are burgeoning like an acronymic forest; e.g., MADAR, CITS, VAST, AIDAPS, IECOMS, BITE, etc.

Without a doubt the most sophisticated and advanced system in use today is the USAF C-5A MADAR (Malfunction Analysis Detection and Recording System).

The heart of the system is an onboard computer which can integrate and display data from approximately 1000 "pickoff" points within the total aircraft system. Aside from being able to discreetly search various systems and subsystems, a continuous flow of key maintenance data is fed into recording tapes.

The recording tapes are later fed into a ground-based computer which then programs scheduled and unscheduled maintenance work orders, shuttles key data to a central data bank at Oklahoma City, orders necessary parts, and updates the total C-5A fleet operational status in real time!

Via the medium of the onboard computer, the C-5A flight engineer has the capability not only to diagnose, but also to correct certain system malfunctions and degradations. To assist him, the computer has the capability to display appropriate tech orders and systems diagrams which are recorded on tape.

The net thrust of these development efforts is not to eliminate man from the maintenance loop, but to achieve greater safety while achieving greater economies in logistic and personnel requirements.

In conclusion, it would be reassuring if we could report that as much effort was being expended on "human systems" as on "hardware systems." This, however, is not the case. Since the human evolutionary process will have advanced little – if at all by the year 2000 – it would at this point in time seem wise to begin addressing the human factor in aviation systems in greater depth.

Those concerned with the role of man in the safety of future aviation systems would do well to turn to the wealth of psychophysiological data that has, and is, being gathered by NASA as part of various space programs. This data, a great deal of which still awaits meaningful analysis, represents an ideal point of departure for the study of man's role in future aviation systems.

USAAAVS *System Safety Newsletter*

From principles is derived probability, but truth or certainty is obtained only from facts.
Nathaniel Hawthorne

The following personal letter to CAPT Richard A. Eldridge, USN, Director of Aviation Safety Programs, came from a longtime friend.

We Get Letters. . .

Re "Cockpit Coordination"

Oklahoma City, OK – A lot of saltwater has gone by the bow since we were zapping around in F-8s and other assorted Navy fighters. Now I find myself a Category 3 in the Ready Reserves (statutorily due to . . . Oops . . . age). I'm getting my jollies as a multicrew, multiengine puke in the FAA here at the Aeronautical Center as a Flight Test Pilot/Specialist. I also find myself reading *all* the articles in APPROACH, instead of just the tailhook-oriented thrillers.

I'm prompted to drop you this line in support of a very fine article in the November issue. The "Cockpit Coordination" article was very interesting to me, never having been a Navy transport type or in industry test, especially since now "I are one."

The FAA Academy is located here and all of our pilots go to it for their type rating (ground and flight) courses for the various models of light, medium, and heavy; and prop, turboprop, and jet transports. Tell the A-7 jocks the FAA considers all aircraft over 12,500 pounds "heavy" or "large."

Your staff member did a good job on that article and it appears the FAA subscribes to everything said with the possible exception of left-seat training in dual-control aircraft. We start them quite early, if not initially in some cases. However, the students I'm discussing are already certificated and class rated, and they're merely getting a type rating.

You can bet coordination and communication are definitely the watchwords among our multiseat flightcrews. The PIC and SIC (Pilot in Command/Second in Command) are inseparable in the preflight paperwork stages (route planning, payloads, fuel requirements, CG loading, weather, filing – the whole wax works). The same goes for exterior and interior preflight inspections.

It is *not* "You get this and I'll get that." We both *want to* and *should* see and learn everything the other does before committing ourselves to the great adventure. We then go through the standard series of checklists with the SIC challenging and the PIC replying. After the before-takeoff-checklist comes the captain's briefing. This is never taken lightly due to familiarity, because of inconsistent takeoff gross weights, weather conditions, runway variables, and different airfield/area characteristics.

The captain's briefing contains such items as power control – if, when, and to whom control shifts; abort or other actions before and after V_1; engine-out verification methods and cleanup responsibility; and finally, after takeoff, VFR/IFR, emergency flight procedures. Other items, as necessary, are discussed here before the duty runway is requested because this briefing period is not to be hurried.

Since I wasn't a Navy transport pilot I don't know if our VR troops do this or not, but on the other end of the line, we have another checklist after the In Range, and usually before the landing checklist, called the Final Approach Fix checklist. The PIC reminds the SIC to check altimeters now and look for warning flags continuously; call out 500 feet AGL; call out 100 feet above minimums; and at minimums, call runway or familiar field markings in sight. This only takes a few seconds but it gets the SIC to review the field elevation and the minimums as applicable to that approach, that day, at that field. Then the SIC orally reviews for the PIC the missed-approach procedures.

All this "schpiel" isn't to tell anybody anything new, nor is it an attempt at paternalism; it is merely a supporting statement for your wise counsel in the article and to add whatever fuel it can to the bright, guiding light in aviation safety. Incidentally, this is from me to you, pal, not FAA to Navy.

Keep well, stay cool, and lots of luck and continuing success with a great magazine.

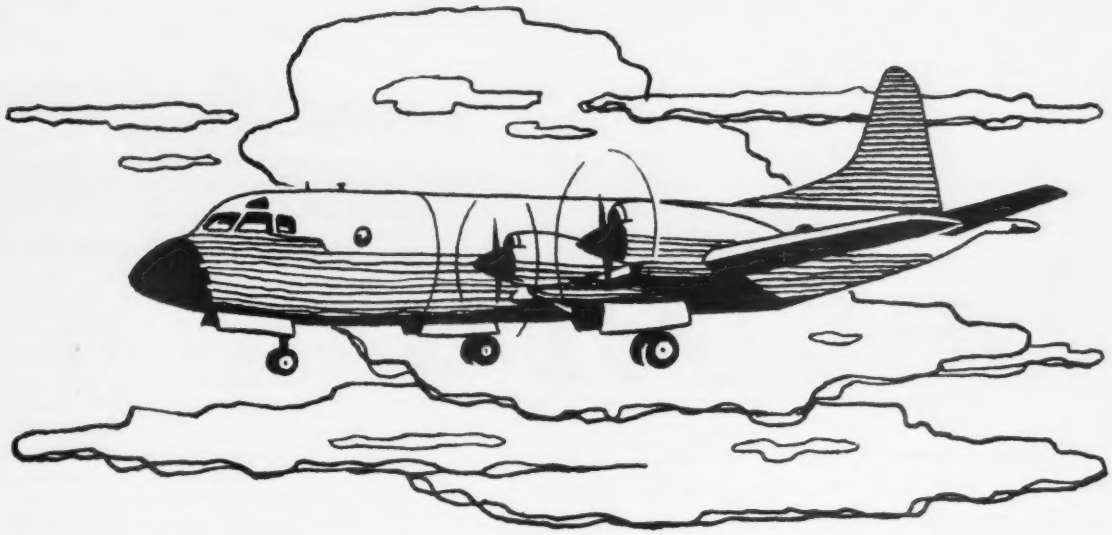
CAPT Warren S. Parr, Jr., USNR-R

Let the Builder Beware

LEST anyone think safety regulations or, for that matter, regulations of any kind are relatively recent in origin, consider the following – an excerpt from a code of ethics formulated by the king of Babylonia (circa 1728 B.C.).

"If a builder constructed a house for a lord, but did not make his work strong, with the result that the house he built collapsed and so caused the death of the owner of the house, that builder shall be put to death."

(from the Code of Hammurabi)
from "Flight Safety Facts and Analysis"



Refusal Speed or Refusal Distance?

By LT John O. Drake, Jr.
VP-49

PILOTS of many types of aircraft use a refusal speed on takeoff to indicate the farthest point in the roll when the takeoff can be aborted and the aircraft safely stopped in the runway remaining. Many factors go into the refusal speed calculation, but basically, it is computed on the basis of aircraft weight versus runway length and environmental conditions.

Generally speaking, at the lighter aircraft weights used in a pilot training situation, the universal refusal speed equals the "rotate" speed of 115 knots in the P-3, since it is normally safe to abort the takeoff up until the point of rotation and liftoff.

Without thinking about it, it is very easy to fall into the trap of using 115 knots for refusal on a training flight even though some of the parameters for the refusal calculation may have changed since the first takeoff of the day. As an example, consider the touch-and-go landing. How can we apply the same 115-knot refusal speed to a touch-and-go that we use for a full runway normal takeoff?

Since the refusal speed calculation is really a determination of the runway remaining versus a speed in the takeoff roll, it follows that there can be no accurate calculation of refusal speed on a touch-and-go since runway length cannot be an accurate input. Therefore, we should concern ourselves with the refusal distance rather than an arbitrary speed for determining safe abort criteria on a touch-and-go.

For any given aircraft weight, speed and runway condition, the distance to decelerate and stop can be accurately determined. The refusal distance decreases with lighter aircraft weight. For a training flight in which touch-and-go landings are anticipated, a refusal distance should be computed using existing runway and environmental conditions and using the maximum weight at which touch-and-go's will be made. Using the charts in the P-3C NATOPS manual, it can be shown that a 103,880-pound P-3 (maximum recommended touch-and-go weight) can be stopped on a dry runway with no wind from 115 knots in 2500 feet using standard abort procedures. Of course, as the aircraft weight decreases, this distance will also decrease slightly. To allow a margin for error or indecision, it is recommended that P-3 pilots use 3000 feet of runway remaining as their go/no-go point on a touch-and-go landing. Patrol Squadron FORTY-NINE pilots have adopted this procedure as another step in the promotion of safety through safe operating practices.

The mouth is the grocer's friend,
the dentist's fortune, the orator's
pride, and the fool's trap.
Grit

Letters

Collision Course

NAS Conus – An A-4C was shooting practice GCAs to burn down prior to performing a hydraulic disconnect. On the third approach (cleared for a touch-and-go landing), the A-4C and a TA-4 touched down at opposite ends of the same runway – at the same time. The TA-4 was shooting (and was cleared for) a TACAN approach to Runway 15, while the A-4C was making practice GCAs to Runway 33.

The clearance authorized by the tower and passed to approach control was that the TA-4 was cleared for a TACAN approach to Runway 15, circle-to-land Runway 33. This information apparently was not passed to the TA-4 before he was switched to tower frequency. At approximately 4 miles, the TA-4 contacted the tower for clearance to land and was cleared by the tower without the runway being designated. The A-4C, on GCA frequency, was not aware of the TA-4's presence at any time during his practice approaches.

The A-4C pilot saw the TA-4 coming down the runway after he had rotated to get airborne again. The TA-4 continued his landing rollout as cleared.

This appears to be a classic example of "assuming" that the clearance had been passed, as it should have been. The ball was dropped by the tower in not specifying to the TA-4 pilot what runway he was cleared to land on. Imagine what might have occurred had the A-4C pilot decided to make his landing a final because of some unforeseen emergency!

Name Withheld

• This amounts to a sort of "double failure." It's somewhat difficult to believe that Approach didn't specify in their initial clearance that it was a circle-to-land type clearance – with Tower following suit and not clarifying which runway the TA-4 was cleared to. With a combination like that controlling traffic, the accident rate can't help but go up.

Corsair II Training

NAS Point Mugu – My A-7 squadron recently received a very fine briefing on DCM and ACM from a young West Coast RAG instructor. During the course of the program, he gave a detailed description of the methods used by the A-7 team on a special project in which he had been a participant. He candidly told of flying the A-7 on the fringes of the flight envelope. During the project, we were told that it was common practice to fly the A-7 in excess of 26 units AOA without departing controlled flight.

The point of this letter is not to knock the procedure, but rather to stimulate some sort of community-wide policy regarding this type of training in the airplane. As a result of the firsthand briefing we received, our squadron pilots are now a lot more confident (maybe a little *too* confident in some cases, since most of the pilots in the squadron have not had the benefit of this type of training in the controlled RAG environment). I'm sure that the nucleus of many and perhaps most other squadron pilot groups have not undergone this training either.

I would like to see the establishment of an A-7 wide program whereby an approved syllabus may be administered by the RAG to a designated representative from each squadron. After becoming qualified, this pilot could then oversee the ground and flight training of his fellow aviators in this phase.

The A-7 has long been regarded by most who fly it as unsafe any time the rudder shaker is on. This fear, however, is slowly being dispelled. Why, then, should even one more A-7 or pilot be lost as a result of an unintentional departure or spin? Let's standardize the program in the interest of professionalism and safety!

LCDR W. N. Brand, III
ASO, VA-305

• Hear, hear!

The Games Squadrons Play

FPO, Bothcoasts – After an extensive day and night preparation of a LAMPS helo, the bird was launched on an operational mission. Upon completion, the crew was to land aboard a 1052-class DE for a VIP display. All went as planned with the aircraft making a fly-by alongside the ship, which was moored stern out by the pier.

The helo then commenced its approach to land. A green deck suddenly changed to red with the helo in close, and a waveoff was executed. When the ship's tower was questioned, the reply was that the backup aircraft looked so good on its approach that the landing

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

was given to him.

The bewildered pilot of the tasked aircraft suddenly got the picture – their commitment had been snatched by another squadron which, unannounced, had their helo in the groove behind No. 1. They had set up the whole deal. After landing, they shut down for the display.

Landings aboard small decks are exacting evolutions which call for professional performance. While competition between squadrons is healthy, it must never be allowed to enter the operational arena, such as this. Cutting another aircraft out of the pattern is dangerous, can cause bad feelings, and is unprofessional to the *nth* degree.

We-were-there-firstmouse

ICAO IFR Procedures

Farmingdale, NY – I am an avid reader of your magazine and am grateful to those airmen who contribute to the whole aviation community by writing such fine articles.

I would like to put my two cents worth in too. Some time ago, a person requested the address where he could obtain ICAO IFR procedures. The address was given in APPROACH, but it apparently was incorrect, since I never was able to get a reply to my letters. I have ferreted out the correct address and am passing it on so you can let anyone interested know how to obtain the subject material. The address is:

International Civil Aviation Organization
International Aviation Building
1080 University St.
Montreal 101, Quebec, Canada

The name of the material is: Annex 2 – Rules of the Air (6th Edition), and the price is 75 cents.

Julius T. Hamory

Deck Waivers

NAVAIRSYSCOM – This is in reference to the two Letters to the Editor concerning certification which were published in the OCT '74 APPROACH.

The Aviation Facilities Ship certification program is working. There are now approximately 130 of these ships certified to some level and class. The number of discrepancies for those ships operating on a waiver has been reduced by approximately 20 percent.

Whenever and wherever certification is discussed, the accusation is usually made that the minimums are too rigid – or that the Systems Commands are gold plating the facilities. Perhaps at the start of the certification program we did have some overkill. We took the certification requirements from accepted technical publications, i.e., NATOPS manuals, SOP, etc. As experience was gained and these sources proved to contain excessive and unrealistic requirements, they and the bulletins were changed. As now published and amended, the Helicopter Operating and Support Facilities Bulletin 1B contains realistic minimum requirements.

I agree with LCDR Fordham that since waivers can be obtained so readily, there may be little real incentive to meet minimums. I'd like to see waivers issued only for those items which are beyond a ship's immediate capability to correct; such as items requiring a SHIPALT, a supply item not obtainable, or a personnel problem due to the nonavailability of a school quota, etc. The NAVAIRENGCEN certification inspection reports list those items which are considered ship's force correctable.

HELOPFACSUPBUL 1B para 15.6(8) states that the Helicopter Operations Bill shall "specify that prior to helicopter operations the pilot must be provided the certification status of the ship and any specific operating procedures relative to the helicopter and the operation." Does this not mean waiver information? Some type commanders now require this procedure in helicopter operations bills. The AIRTYCOM reviews and accepts or rejects all waiver requests. Cannot he readdress all acceptable waivers to all interested commands to ensure helicopter detachments are fully advised of the status of ships?

The waiver process is required at this time. It's effective only if all parties know the deficiencies that exist. If the TYCOMs issued instructions to all their units to include waiver information to all helicopter crews prior to commencing operations, the loop could be closed. There is nothing to preclude helicopter squadrons or crews to question a ship concerning the status of the facility.

Safety of operations is always paramount. Waiver should not be considered a dirty word. Concealing or not offering information concerning an inadequate facility could be considered the crime. Hiding our inadequacies doesn't make the facility any better or worse. Given the facts, the helicopter/ship team can do wonders. Operating in the dark could be our downfall. Let's work in the light.

H. Ziemer

● **That's Charlie.**

Crewman's Complaint

FPO, At Sea – I was chockrunner on the port side of an SH-3, spotted on the angle, and saw the LSE signal the other chockrunner to loosen his tailwheel tiedown. It had been loosened before engagement but had become taut.

The LSE seemed to have trouble getting his attention so I moved aft to loosen the chain. I found two chains; one loose and one taut.

Since the helo was ready to launch I tried to rerig the chains quickly. With my left hand I attempted to remove the port chain hook from the padeye while releasing the starboard chain lock at the same time. When the starboard chain lock was released the *@$* tailwheel moved a couple of feet and pinned my left hand, palm down, on the deck and the upper half of my left fingers between the tailwheel and the padeye. Oooh, that did smart!

I tried to pull my hand out but I wasn't visible to the LSE. Thankfully, a yellowshirt saw my predicament and ran to help. As he arrived, the helo moved forward about 6 inches and my hand was freed.

The reason the helo danced around was a heavy-footed pilot yo-yoing the rudder pedals and prematurely releasing his brakes. I wonder if flight deck pay is worth it?

Name Withheld

● **You've got to like what you're doing up there – at least a little. Let's face it! The government could never afford to pay "flight deckers" what you are *really* worth.** ◄

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CREDITS/Cover: April's cover, by staff artist Blake Rader, commemorates the official opening of the Naval Aviation Museum in Pensacola this month. A Grumman F-11F *Tiger,* similar to the section on the cover, will be on display at the museum. The squadron markings of VF-21 were originally designed by then *Ensign* Floyd Sykes in mid-'57. Pg **10-11** Photos courtesy the author.

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Bravo Zulu

LTJG L. L. Weidert
VA-81

LTJG Weidert launched from FORRESTAL (CVA-59) on an air group flyoff following a highly successful 6-month Mediterranean cruise on what was to be one of the most challenging hops to date of his naval aviation career.

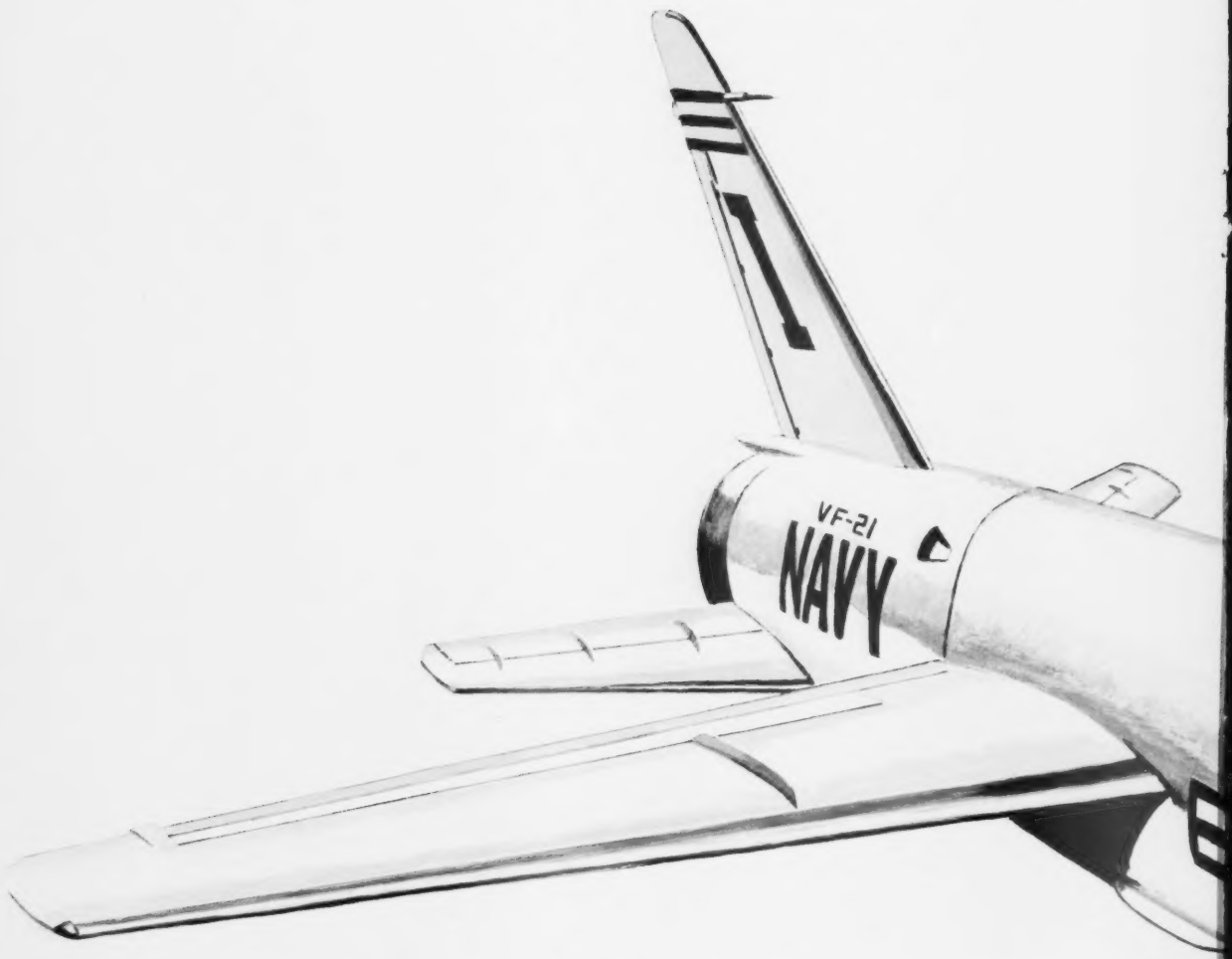
An early launch was necessitated by an SOS call from a Liberian freighter in trouble as the carrier approached the perimeter of tropical storm *Elaine*. Catapult launch and climb to FL230 for rendezvous were uneventful except for the solid IFR weather.

As LTJG Weidert retarded throttle of his A-7 *Corsair* for leveloff, the aircraft entered a series of compressor stalls forcing him to secure the engine to prevent engine damage. A normal airstart followed and LTJG Weidert declared an emergency. He announced his intention to land at MCAS Cherry Point – short of his planned destination of NAS Cecil Field.

LTJG Weidert successfully flew the aircraft to within idle descent range of MCAS Cherry Point without further problems. On reducing the throttle for descent, however, the engine stalled and LTJG Weidert was again forced to secure it to prevent an overtemp. Again, the engine was airstarted normally and a straight-in landing was made at Cherry Point.

LTJG Weidert displayed exceptional aeronautical ability, cool judgment, and precise execution of NATOPS procedures.

Well Done!


VF-21
NAVY